



Test Report T5072-01-2 Issue 1  
ANSI Z87.1-2003  
Microaxis Corp.  
G015 Spectacles  
11 November 2009



Certificate 1722.01

Approved by:

Prepared by:

A handwritten signature in blue ink, appearing to read "Keith E. Whitten", written over a horizontal line.

Keith E. Whitten  
Laboratory Manager

A handwritten signature in blue ink, appearing to read "Cathy Woloszyn", written over a horizontal line.

Cathy Woloszyn  
Laboratory Assistant

- a) Reports are issued pursuant to the ICS standard Terms and Conditions agreement.
- b) The contents of this test report are confidential. Reproduction of the report is prohibited except in full, unless approved in writing by ICS Laboratories, Inc.
- c) Unless otherwise indicated, the test results contained in this report apply only to the samples tested and not to lots or batches from which they were taken.

**ICS Laboratories, Inc. • 1072 Industrial Parkway North • Brunswick, Ohio 44212 USA**  
**Phone: 330.220.0515 Fax: 330.220.0516**

Issued to: Microaxis Corp.  
10369 1F, No. 11, Lane 223, Sec. 3  
Chongcing N. Rd., Datong District  
Taipei City 103  
Taiwan (R.O.C.)

Date: 11 November 2009  
Report: T5072-01-2  
Issue: 1  
Page: 1 of 8

**Objective:**

Contract testing to ANSI Z87.1-2003 "Practice for Occupational and Educational Eye and Face Protection."  
Section 7 Spectacles.

**Samples:**

G015 Spectacles

Ocular Variant	Qty	Sample ID
Gray	60	2A-x
Clear	60	2B-x
Yellow	60	2C-x

Date submitted: 27 October 2009

**Procedures:**

Testing protocols in accord with good laboratory practice were employed for all tests.

All tests were conducted in a standard laboratory atmosphere unless otherwise specified.

Testing procedures as specified within Section 14 of ANSI Z87.1-2003 were followed.

Samples were randomly selected from the quantity provided and tested in the as-received condition unless otherwise stated.

Issued to: Microaxis Corp.  
 10369 1F, No. 11, Lane 223, Sec. 3  
 Chongcing N. Rd., Datong District  
 Taipei City 103  
 Taiwan (R.O.C.)

Date: 11 November 2009  
 Report: T5072-01-2  
 Issue: 1  
 Page: 2 of 8

**Assessment Summary:**

Dates tested: 28 October through 10 November 2009

7. Spectacle Requirements	Compliant	Non-Compliant
7.1 Introduction		
7.2 Spectacle Frame Test		
7.3 Basic Impact Lens Requirements	Not applicable, assessed to 7.4.2	
7.4 Plano Spectacle Lens Requirements		
7.4.1 Basic Impact Testing Requirements		
7.4.2 High Impact Testing Requirements		
7.4.2.1 Spectacle Product Test		
7.4.2.1.1 High Mass Impact	X	
7.4.2.1.2 High Velocity Impact	X	
7.4.2.1.3 Penetration Test	X	
7.4.2.2 Thickness (Non-Plano Frames Only)	Not applicable	
7.4.3 Optical Requirements		
7.4.3.1 Optical Qualities	X	
7.4.3.2 Prismatic Power	X	
7.4.3.3 Refractive Power	X	
7.4.3.4 Resolving Power	X	
7.4.3.5 Haze	X	
7.4.3.6 Transmittance	X	
7.5 Non-Plano Spectacle Lens Requirements	Not applicable	
7.6 Flammability	X	
7.7 Corrosion Resistance	Not applicable	
7.8 Cleanability	X	
7.9 Replacement Spectacle Lenses	Not applicable	
7.10 Marking	Not assessed	

Samples as assessed meet the requirements of ANSI Z87.1-2003 for spectacles with side protection.

Issued to: Microaxis Corp.  
 10369 1F, No. 11, Lane 223, Sec. 3  
 Chongcing N. Rd., Datong District  
 Taipei City 103  
 Taiwan (R.O.C.)

Date: 11 November 2009  
 Report: T5072-01-2  
 Issue: 1  
 Page: 3 of 8

**Results:**

*Gray*

**7.4.2.1.1 High Mass Impact**

Sample ID	Location	Pass	Fail
2A-1	Right Ocular	X	
2A-2	Left Ocular	X	
2A-3	Right Ocular	X	
2A-4	Left Ocular	X	

**7.4.2.1.2 High Velocity Impact**

Sample ID	Location	Velocity (ft/sec)	Pass	Fail
2A-5	Right Ocular 15° Nasal	151	X	
2A-6	Right Ocular 0°	151	X	
2A-7	Right Ocular 15° Temporal	151	X	
2A-8	Right Ocular 30° Temporal	151	X	
2A-9	Right Ocular 45° Temporal	151	X	
2A-10	Right Ocular 60° Temporal	152	X	
2A-11	Right Ocular 75° Temporal	153	X	
2A-12	Right Ocular 90° Temporal	153	X	
2A-13	Right Ocular 90° Temporal +10 mm	153	X	
2A-14	Right Ocular 90° Temporal -10 mm	152	X	
2A-15	Left Ocular 15° Nasal	151	X	
2A-16	Left Ocular 0°	151	X	
2A-17	Left Ocular 15° Temporal	151	X	
2A-18	Left Ocular 30° Temporal	153	X	
2A-19	Left Ocular 45° Temporal	152	X	
2A-20	Left Ocular 60° Temporal	152	X	
2A-21	Left Ocular 75° Temporal	152	X	
2A-22	Left Ocular 90° Temporal	152	X	
2A-23	Left Ocular 90° Temporal +10 mm	152	X	
2A-24	Left Ocular 90° Temporal -10 mm	153	X	

**Side Protection Coverage**

Sample ID	Above Center (mm)	Below Center (mm)	Provides Side Protection
2A-1	22	15	Yes
Specification:	≥ 10		

Note: "The function and coverage of side protection are defined by the high velocity impact test (Section 14.2)". Due to asymmetries of the Alderson 50<sup>th</sup> percentile headform the left eye is used for this assessment as it provides better correlation to published specifications and the standard fitting practices.

**7.4.2.1.3 Penetration**

Sample ID	Location	Pass	Fail
2A-1	Left Ocular	X	
2A-2	Right Ocular	X	
2A-3	Left Ocular	X	
2A-4	Right Ocular	X	

Issued to: Microaxis Corp.  
 10369 1F, No. 11, Lane 223, Sec. 3  
 Chongcing N. Rd., Datong District  
 Taipei City 103  
 Taiwan (R.O.C.)

Date: 11 November 2009  
 Report: T5072-01-2  
 Issue: 1  
 Page: 4 of 8

*Clear*

**7.4.2.1.1 High Mass Impact**

Sample ID	Location	Pass	Fail
2B-1	Right Ocular	X	
2B-2	Left Ocular	X	
2B-3	Right Ocular	X	
2B-4	Left Ocular	X	

**7.4.2.1.2 High Velocity Impact**

Sample ID	Location	Velocity (ft/sec)	Pass	Fail
2B-5	Right Ocular 15° Nasal	151	X	
2B-6	Right Ocular 0°	151	X	
2B-7	Right Ocular 15° Temporal	151	X	
2B-8	Right Ocular 30° Temporal	151	X	
2B-9	Right Ocular 45° Temporal	150	X	
2B-10	Right Ocular 60° Temporal	152	X	
2B-11	Right Ocular 75° Temporal	153	X	
2B-12	Right Ocular 90° Temporal	153	X	
2B-13	Right Ocular 90° Temporal +10 mm	152	X	
2B-14	Right Ocular 90° Temporal -10 mm	152	X	
2B-15	Left Ocular 15° Nasal	152	X	
2B-16	Left Ocular 0°	153	X	
2B-17	Left Ocular 15° Temporal	152	X	
2B-18	Left Ocular 30° Temporal	151	X	
2B-19	Left Ocular 45° Temporal	151	X	
2B-20	Left Ocular 60° Temporal	152	X	
2B-21	Left Ocular 75° Temporal	152	X	
2B-22	Left Ocular 90° Temporal	152	X	
2B-23	Left Ocular 90° Temporal +10 mm	155	X	
2B-24	Left Ocular 90° Temporal -10 mm	153	X	

**7.4.2.1.3 Penetration**

Sample ID	Location	Pass	Fail
2B-1	Left Ocular	X	
2B-2	Right Ocular	X	
2B-3	Left Ocular	X	
2B-4	Right Ocular	X	

Issued to: Microaxis Corp.  
 10369 1F, No. 11, Lane 223, Sec. 3  
 Chongcing N. Rd., Datong District  
 Taipei City 103  
 Taiwan (R.O.C.)

Date: 11 November 2009  
 Report: T5072-01-2  
 Issue: 1  
 Page: 5 of 8

*Yellow*

**7.4.2.1.1 High Mass Impact**

Sample ID	Location	Pass	Fail
2C-1	Right Ocular	X	
2C-2	Left Ocular	X	
2C-3	Right Ocular	X	
2C-4	Left Ocular	X	

**7.4.2.1.2 High Velocity Impact**

Sample ID	Location	Velocity (ft/sec)	Pass	Fail
2C-5	Right Ocular 15° Nasal	150	X	
2C-6	Right Ocular 0°	152	X	
2C-7	Right Ocular 15° Temporal	153	X	
2C-8	Right Ocular 30° Temporal	153	X	
2C-9	Right Ocular 45° Temporal	151	X	
2C-10	Right Ocular 60° Temporal	152	X	
2C-11	Right Ocular 75° Temporal	151	X	
2C-12	Right Ocular 90° Temporal	151	X	
2C-13	Right Ocular 90° Temporal +10 mm	151	X	
2C-14	Right Ocular 90° Temporal -10 mm	151	X	
2C-15	Left Ocular 15° Nasal	151	X	
2C-16	Left Ocular 0°	152	X	
2C-17	Left Ocular 15° Temporal	153	X	
2C-18	Left Ocular 30° Temporal	153	X	
2C-19	Left Ocular 45° Temporal	153	X	
2C-20	Left Ocular 60° Temporal	152	X	
2C-21	Left Ocular 75° Temporal	151	X	
2C-22	Left Ocular 90° Temporal	152	X	
2C-23	Left Ocular 90° Temporal +10 mm	153	X	
2C-24	Left Ocular 90° Temporal -10 mm	153	X	

**7.4.2.1.3 Penetration**

Sample ID	Location	Pass	Fail
2C-1	Left Ocular	X	
2C-2	Right Ocular	X	
2C-3	Left Ocular	X	
2C-4	Right Ocular	X	

Issued to: Microaxis Corp.  
10369 1F, No. 11, Lane 223, Sec. 3  
Chongcing N. Rd., Datong District  
Taipei City 103  
Taiwan (R.O.C.)

Date: 11 November 2009  
Report: T5072-01-2  
Issue: 1  
Page: 6 of 8

**7.4.3.1 Optical Qualities; Result: Pass**

Samples are free of striae, bubbles, waves and other visible defects and flaws.

**7.4.3.2 Prismatic Power**

Sample ID	Prismatic Power ( $\Delta$ )		Vertical Imbalance ( $\Delta$ )	Horizontal Imbalance ( $\Delta$ )	Pass	Fail
	Left Ocular	Right Ocular				
<i>Gray</i>						
2A-25	0.16	0.18	0.04	0.12 Base Out	X	
2A-26	0.19	0.21	0.04	0.13 Base Out	X	
2A-27	0.18	0.20	0.03	0.12 Base Out	X	
Specification:	$\leq 0.50$		$\leq 0.25$	$\leq 0.50$ Base Out $\leq 0.25$ Base In		

**7.4.3.3 Refractive Power**

Sample ID	Left Ocular (D)			Right Ocular (D)			Pass	Fail
	Refractive Power	Astigmatism		Refractive Power	Astigmatism			
<i>Gray</i>								
2A-25	-0.01	-0.02	0.01	0.00	-0.02	0.02	X	
2A-26	-0.01	-0.03	0.02	-0.01	-0.02	0.01	X	
2A-27	-0.01	-0.02	0.01	-0.01	-0.03	0.02	X	
Specification:	+/- 0.06		$\leq 0.06$	+/- 0.06		$\leq 0.06$		

Note: Tested in a simulated as worn position.

**7.4.3.4 Resolving Power**

Sample ID	Pattern Resolved		Pass	Fail
	Left Ocular	Right Ocular		
<i>Gray</i>				
2A-25	>20	>20	X	
2A-26	>20	>20	X	
2A-27	>20	>20	X	
Specification:	$\geq$ Pattern 20			

Note: Tested in a simulated as worn position.

**7.4.3.5 Haze (Clear Lenses Only)**

Sample ID	Location	Measured Value (%)	Pass	Fail
<i>Clear</i>				
2B-28	Right Ocular	0.14	X	
2B-29	Left Ocular	0.15	X	
2B-30	Right Ocular	0.09	X	
Specification:	$\leq 3$			

Issued to: Microaxis Corp.  
 10369 1F, No. 11, Lane 223, Sec. 3  
 Chongcing N. Rd., Datong District  
 Taipei City 103  
 Taiwan (R.O.C.)

Date: 11 November 2009  
 Report: T5072-01-2  
 Issue: 1  
 Page: 7 of 8

**7.4.3.6 Transmittance**

Sample ID	Left (%)	Right (%)	Left/Right	Pass	Fail
<b>Gray</b>					
2A-25	14.9	14.8	1.007	X	
2A-26	15.0	14.7	1.020	X	
2A-27	15.0	14.9	1.007	X	
<b>Clear</b>					
2B-25	89.9	89.8	1.001	X	
2B-26	89.8	89.7	1.001	X	
2B-27	89.9	90.0	0.999	X	
<b>Yellow</b>					
2C-25	88.7	88.5	1.002	X	
2C-26	88.6	88.6	1.000	X	
2C-27	88.4	88.6	0.998	X	
Specification:	Clear: $100 \geq T (L) \geq 85$ Special Purpose: Tinted: $100 \geq T (L) \geq 8$ Extra Dark: $8 > T (L) \geq 0.2$		$1.10 \geq L/R \geq 0.90$		

**7.6 Flammability**

Sample ID	Component	Measured Value (mm/min)	Pass	Fail
<b>Gray</b>				
2A-1	Lens	8	X	
	Front	15	X	
	Temple	20	X	
2A-2	Lens	8	X	
	Front	15	X	
	Temple	15	X	
2A-3	Lens	0	X	
	Front	15	X	
	Temple	10	X	
<b>Clear</b>				
2B-1	Lens	10	X	
2B-2	Lens	5	X	
2B-3	Lens	0	X	
<b>Yellow</b>				
2C-1	Lens	5	X	
2C-2	Lens	5	X	
2C-3	Lens	12	X	
Specification:		$\leq 76$		

**7.8 Cleanability; Result: Pass**

The function and markings are not impaired by the cleaning procedure.

Issued to: Microaxis Corp.  
10369 1F, No. 11, Lane 223, Sec. 3  
Chongcing N. Rd., Datong District  
Taipei City 103  
Taiwan (R.O.C.)

Date: 11 November 2009  
Report: T5072-01-2  
Issue: 1  
Page: 8 of 8

**Sample Photographs:**



## TERMS AND CONDITIONS

1. Client acknowledges that ICS Laboratories (ICS) performs testing services only as specified by Client. ICS does not design, warrant, supervise or monitor compliance of products or services except as specifically agreed to in writing. By their very nature, testing, analysis, and other ICS services are limited in scope and subject to expected measurement variability.
2. Client or Client's authorized representative shall be afforded the opportunity to clarify test requests and reasonable access to monitor test work, provisional to protecting the confidentiality of other clients.
3. ICS shall keep documents and information related to Client confidential and will not disclose any such information to third parties without client permission. ICS will, however, disclose any such information in response to legal process after providing Client with a copy of such process.
4. ICS Reports apply only to the standards or procedures identified therein and to the sample (s) tested and or inspection (s) made. Test and/or inspection results are not indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products.
5. ICS Reports are for the exclusive use of the Client. They and the name ICS Laboratories, Inc., or its seals or insignia, are not to be used by or on behalf of Clients under any circumstances for any purpose whatsoever, including but not limited to use in advertising, publicity material or in any other manner without ICS's prior written approval.
6. Any use by Client of ICS's Reports or the information contained therein is conditional upon timely payment of all fees.
7. The name (s) listed as the "Issued to" party on test reports may not reflect the actual entity submitting and/or contracting the assessment.
8. ICS shall retain copies of Reports and applicable evidentiary test samples for a period of five years, at which time they will be disposed. If Client requests additional copies of Reports during this period, an additional charge will apply for the preparation and delivery of such reports.
9. Test reports are valid for certification purposes for one year from date of issue, inclusive of retest or variant additions which must be performed within one year of date of issue to avoid full retest.
10. Samples and portions thereof not destroyed in testing remain the property of the Client, are retained a maximum of 30 days, and thereafter may be disposed of or returned to Client at ICS's option.
11. Client is responsible for procuring, at its cost, insurance protecting the value of its property and samples.
12. For the safety of our personnel, Client must advise if samples are known or suspected to contain hazardous substances. Material Safety Data Sheets must be provided upon request if available.
13. ICS represents that Services shall be performed within the limits agreed with Client, and in a manner consistent with good laboratory practice. **NO OTHER REPRESENTATIONS TO CLIENT, EXPRESS OR IMPLIED, AND NO WARRANTY OR GUARANTEE IS INCLUDED OR INTENDED IN THIS AGREEMENT, OR IN ANY OTHER REPORT, OPINION OR DOCUMENT RELATED TO THE SERVICES. ICS DOES NOT GUARANTEE PRODUCT COMPLIANCE OR CERTIFICATION.**
14. ICS hereby objects to any conflicting terms contained in any order or acceptance submitted by Client.
15. Schedules confirmed upon acceptance of quotation. All reasonable efforts will be made to comply with conferred schedule. Guarantees are neither implied nor promised.
16. Certain work may be subcontracted to ICS authorized affiliate laboratories as required or applicable.
17. Client agrees to pay any and all additional costs associated with unexpected or above standard communications and/or consultations with client or third parties as designated by client.
18. Client agrees to pay any and all additional costs for work additional to the original scope of work as agreed to by client.
19. Client understands and agrees that ICS, in entering into this Contract and by performing services hereunder, does not assume, abridge, abrogate or undertake to discharge any duty or responsibility of Client to any other party or parties. No one other than Client shall have any right to rely on any Report or other representation of conduct of ICS and ICS disclaims any obligations of any nature whatsoever with respect to such person. **CLIENT AGREES, IN CONSIDERATION OF ICS UNDERTAKING TO PERFORM THE TEST(S) HEREUNDER, TO PROTECT, DEFEND, INDEMNIFY, SAVE HARMLESS AND EXONERATE ICS FROM ANY AND ALL CLAIMS, DAMAGES, EXPENSES EITHER DIRECT OR CONSEQUENTIAL FOR INJURIES TO PERSONS OR PROPERTY ARISING OUT OF OR IN CONSEQUENCE OF THE PERFORMANCE OF THE TESTING, INSPECTIONS AND REPORTS HEREUNDER AND/OR THE PERFORMANCE OF THE PRODUCTS TESTED OR INSPECTED HEREUNDER, UNLESS CAUSED BY THE NEGLIGENCE OF ICS.**
20. **IT IS AGREED THAT IF ICS SHOULD BE FOUND LIABLE FOR ANY LOSSES OR DAMAGES ATTRIBUTABLE TO THE SERVICES HEREUNDER IN ANY RESPECT, ITS LIABILITY SHALL IN NO EVENT EXCEED THE AMOUNT OF THE FEE PAID BY CLIENT FOR SUCH SERVICES AND CLIENT'S SOLE REMEDY AT LAW OR IN EQUITY SHALL BE THE RIGHT TO RECOVER UP TO SUCH AMOUNT.**
21. Quotations are valid for 30 days from date of issue. Terms: 30% Laboratory/Testing fees invoiced and payable upon acceptance of quotation. Remaining Laboratory/Testing fees invoiced and payable upon completion of services, 15 days net. Cancelled jobs will be invoiced for work performed and/or set-up costs incurred. Cancelled Purchase Orders are subject to 10% service charge. Shipping costs incurred by ICS will be invoiced at cost +10% handling fee. A minimum USD \$25.00 handling fee will be invoiced. Shipping costs incurred by the client will be invoiced a USD \$25.00 handling fee.
22. In the event that payment is not received within 15 days of invoice date, Client agrees to pay a late payment charge on the unpaid balance equal to 1-1/2% per month or the maximum charge allowed by law, whichever is less, and all costs and expenses, including attorney's fees where recovery of the same is not prohibited by law, incurred by ICS in collecting such invoices.
23. All costs associated with compliance with any subpoena (s) for documents, testimony in a court of law, or for any other purpose relating to work performed by ICS in connection with work performed for that Client, shall be paid by Client. Client shall also pay ICS's then existing standard fee for consulting, deposition and trial testimony and all expenses related thereto.
24. Cancelled/discontinued orders: Client responsible for all administrative and testing charges up to point of cancellation.