



E3 Check Testing Results

**An examination of the results of
check tests undertaken for the Equipment
Energy Efficiency Program between
1 January and 30 June 2011**

November 2011



**A joint initiative of Australian, State and Territory
and New Zealand Governments.**

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1. Introduction

This report presents the results of check tests undertaken on behalf of the Equipment Energy Efficiency (E3) Committee that were initiated in the period from 1 January to 30 June 2011. The results of Stage 2 tests resulting from these tests are also included, even if they were completed after June 2011.

2. Headline Results

Seventy-five check tests were completed in the first six months of 2011.

Ten models (13%) failed the stage 1 check test. Of these, six (8%) had their registration cancelled either at the request of the supplier or following confirmation of the failure at the completion of

stage 2 testing. The results are shown in Figure 1 and Table 1.

Sixty-eight models (92%) passed either the stage 1 or stage 2 check test and were deemed by regulators to comply with the Australian and New Zealand MEPS and energy labelling requirements.

Figure 1: Summary of check testing results, Jan-June 2011

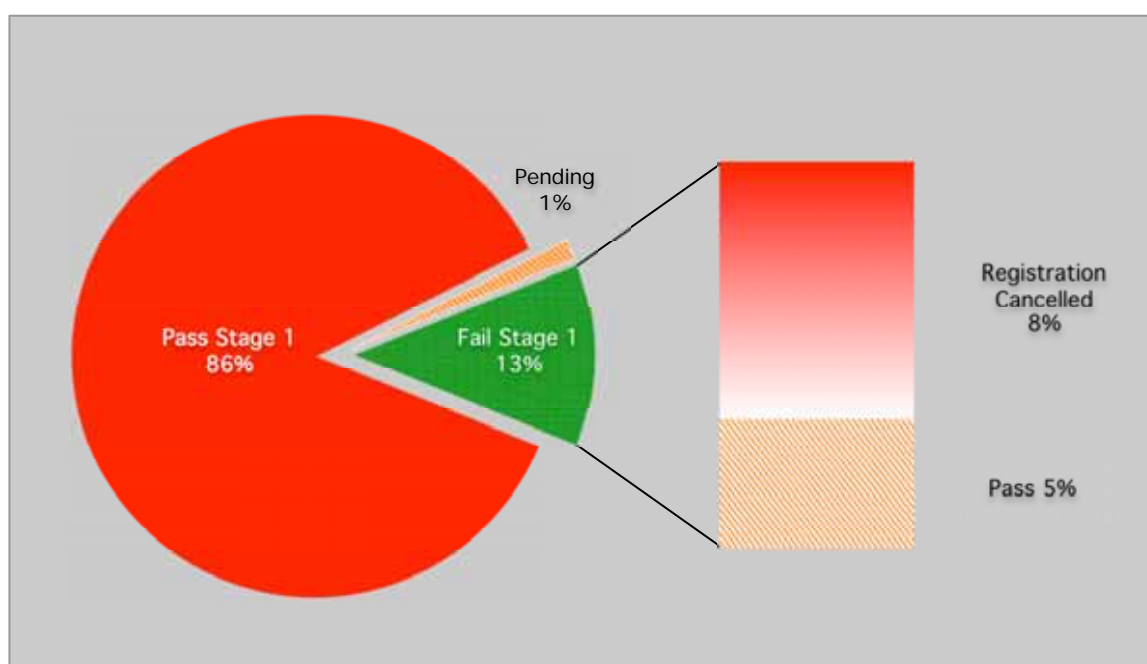


Table 1: Summary of check testing results, Jan-June 2011

		Jan-March 2011	April-June 2011	Jan-June 2011
Stage 1	Total	31	44	75
	Pass	26	38	64
	Fail	5	5	10
	Pending	0	1	1
Stage 2	Pass	0	4	4
	Cancelled	4	2	6
	Pending	1	0	1

3. Results by Product Category

3.1 Stage 1 Results

Tests have been conducted on the following six product categories:

- Air conditioners
- Clothes washers
- Electric motors
- Refrigerator/freezers
- Televisions
- Set top boxes

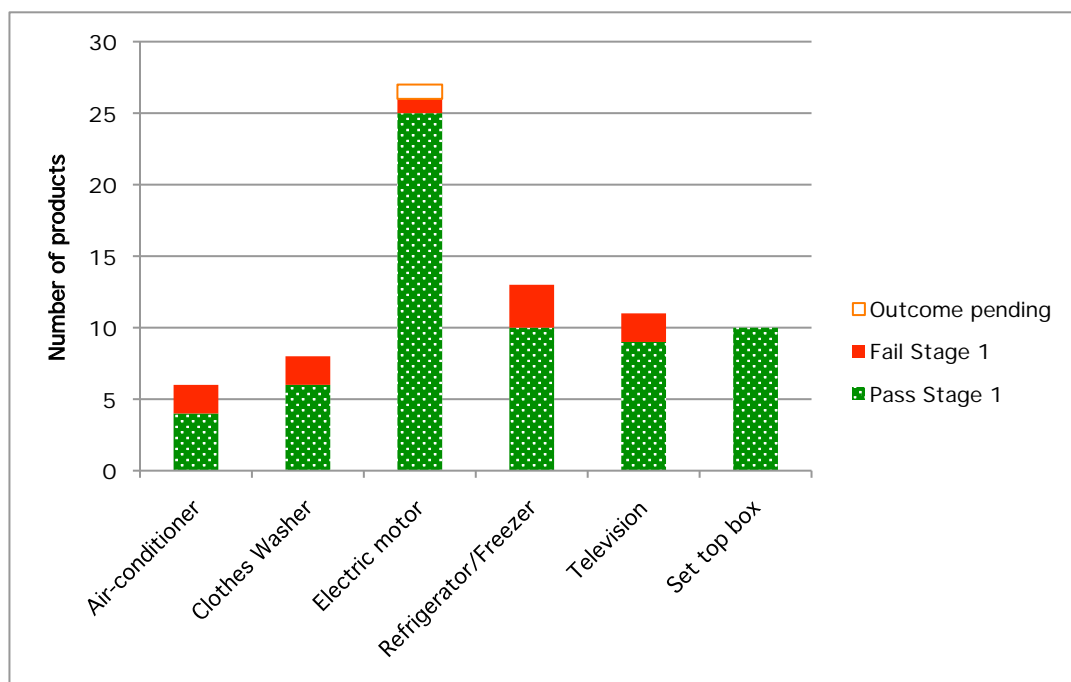
Electric motors were the most tested product during this period with 27 models tested. The 10 set top boxes tested were found to have 100% compliance with energy performance requirements.

The distribution of tests by product category and the respective results of Stage 1 tests are shown in Table 2 and Figure 2.

Table 2: Stage 1 test results by product category, January-June 2011

		Air-conditioner	Clothes washer	Electric motor	Refrigerator/Freezer	Television	Set top box
Stage 1	Total	6	8	27	13	11	10
	Pass	4	6	25	10	9	10
	Fail	2	2	1	3	2	0
	Pending	0	0	1	0	0	0

Figure 2: Stage 1 test results by product category, January-June 2011



The breakdown of Stage 1 results for each of the three monthly periods (Jan-March and April-June) are shown in Figure 3 and Figure 4.

Figure 3: Stage 1 test results by product category, January-March 2011

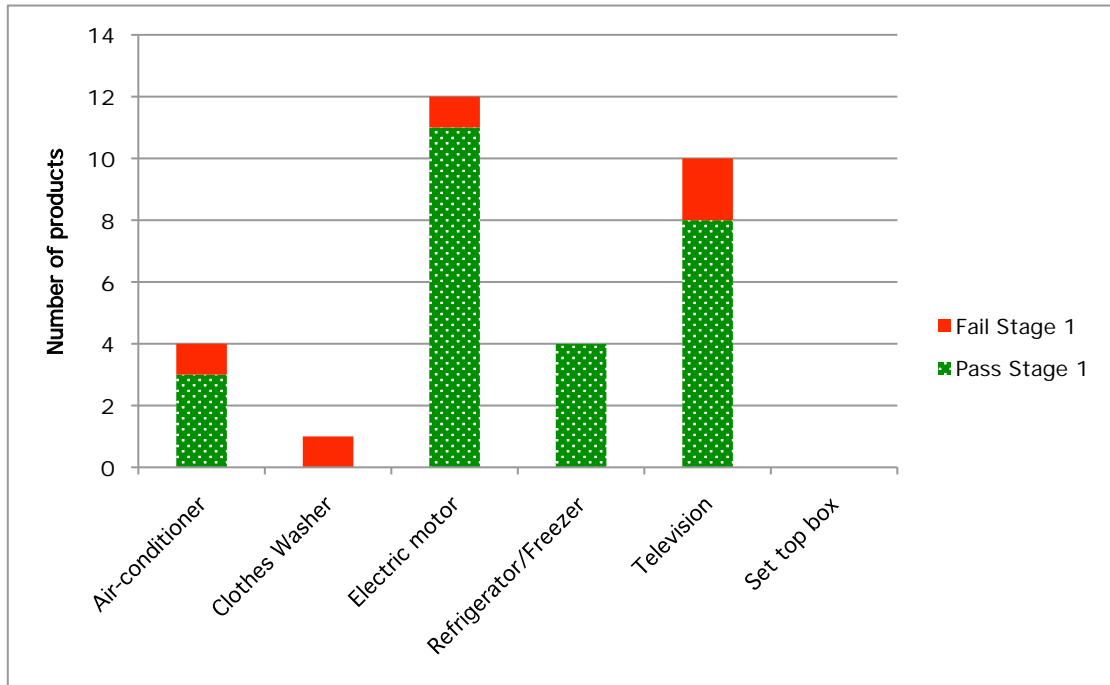
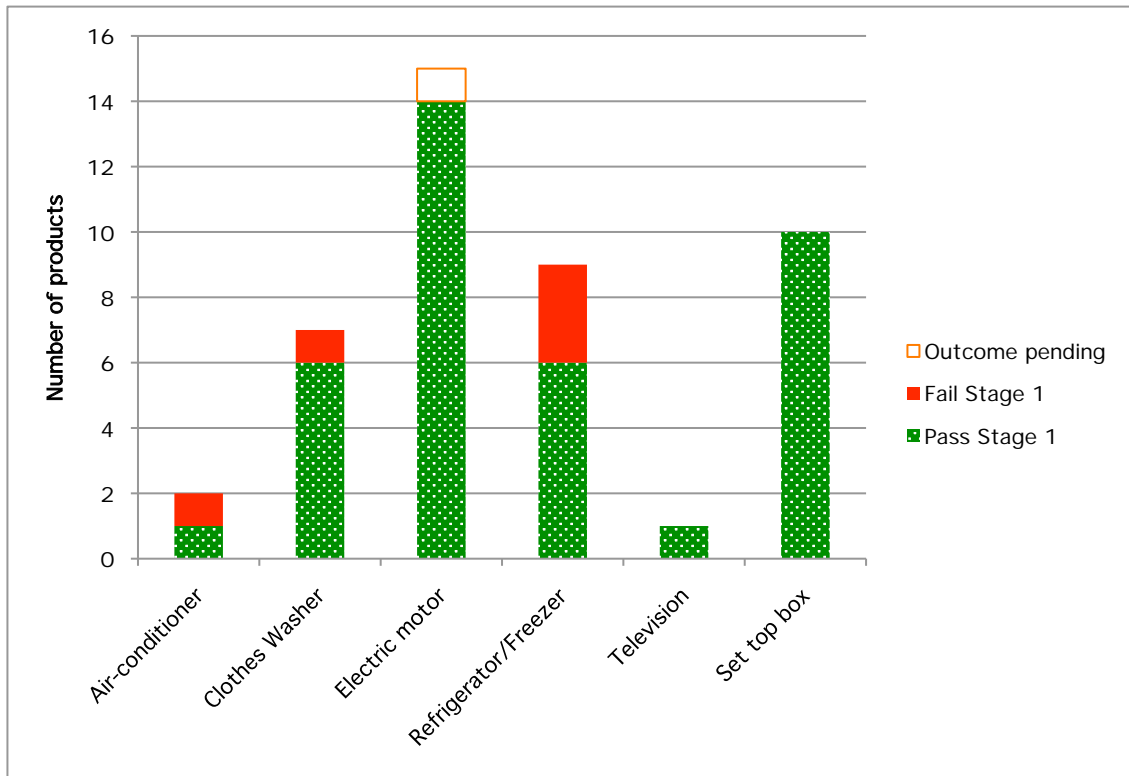


Figure 4: Stage 1 test results by product category, April-June 2011



3.2 Deemed to Comply

Overall, 92% of products tested were judged by regulators to comply with energy regulations. This is relatively high compared to the results from longer term analysis of previous years. For example, the overall compliance rate for the period 2004/5 to the end of 2010 was 84% (as shown in Figure 6).

Set top boxes and electric motors were found to have the highest compliance rates, while the lowest compliance rates were evident in televisions and air conditioners (see Figure 5 and Table 3). However, due to the very small sample sizes within each product category, the differences in compliance rates are not considered to be significant.

Figure 5: Compliance rates for check tested products, Jan-June 2011

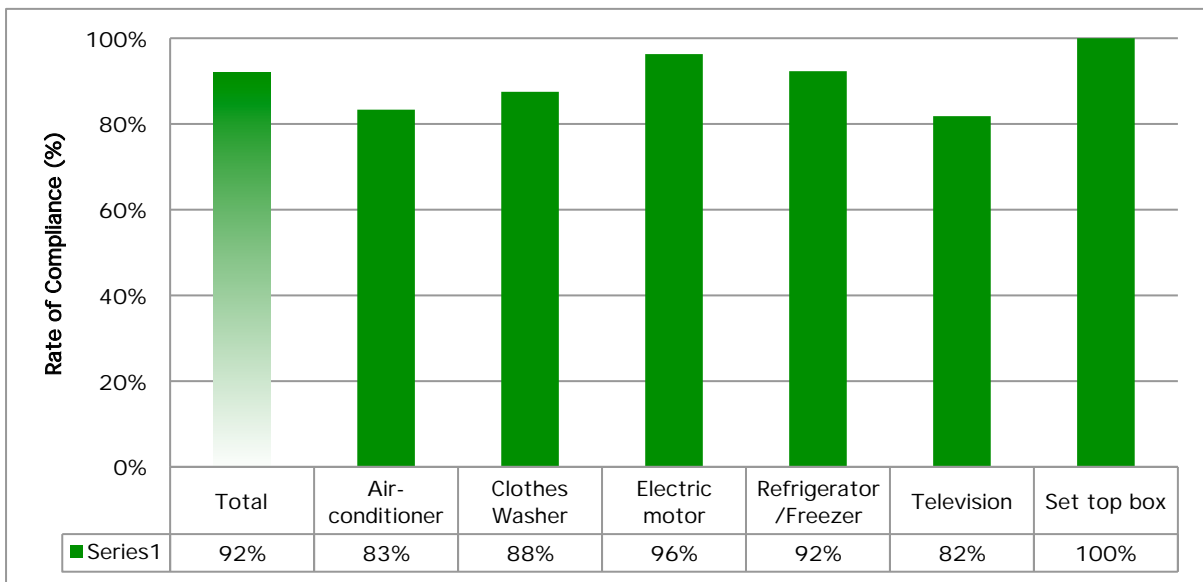
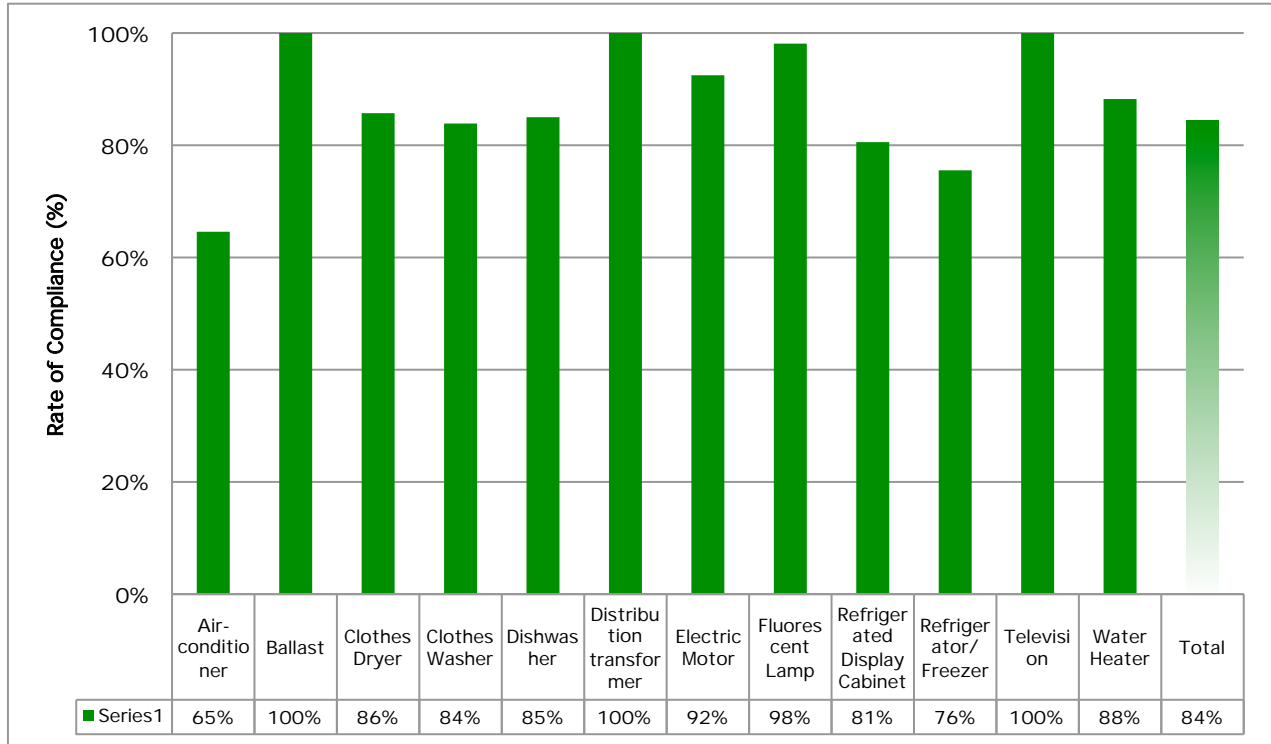


Table 3: Stage 2 test results by product category, January-June 2011

		Air-conditioner	Clothes washer	Electric motor	Refrigerator/Freezer	Television	Set top box
Total tested		6	8	27	13	11	10
Stage 2	Pass	0	1	1	2	0	0
	Cancelled	1	1	1	1	2	0
	Pending	1	0	0	0	0	0

Figure 6: Compliance rates for check tests, 2004/5 – 2010



4. Results by Brands

The 75 models tested represented 57 individual brands, as shown in Table 4.

Table 4: Brands of tested models

Brands	Number Tested	Brands	Number Tested
Altech UEC	1	LIEBHERR	1
AOC	1	LOHER (Siemens)	1
BALDOR	1	MARATHON	1
Brook Crompton	1	MECHTRIC	1
BUSH, GRUNDIG	1	NEONIQ	1
CentriPro	1	OLIN, OLIN	1
CMG	2	PALSONIC	1
DAIKIN	1	PANGOO	1
DELONGHI	1	REMX	1
Dick Smith	1	ROSSI	1
E.E. Green	1	Rototech	1
ECLIPSE	1	SAMSUNG ELECTRONICS	2
ELECTROLUX	1	SANYO	1
EMT	1	SCORPION ELECTRIC MOTOR	2
FISHER & PAYKEL	2	SEW-EURODRIVE	1
GE	1	SHARP	2
GRUNDFOS	1	Siemens	1
GRUNDIG, BUSH	1	SONIQ, SONIQ	1
GVA	1	SONY	1
HAIER	3	SPEED QUEEN	1
HELLER	2	TCL	1
HILLS INDUSTRIES	1	TECO	1
HISENSE	1	Toshiba	3
Ingersoll-Rand/Teco	1	VIVO	2
Invertek	1	WEG	2
KELVINATOR	1	WESTINGHOUSE	1
Kogan	1	WHIRLPOOL	1
LEROY SOMER	1	Wonder	1
LG	7		

The six products deemed to be non-compliant all represented different brands, as shown in Table 5.

Table 5: Brands found to be non-compliant

Product Category	Brand
Clothes Washer	SPEED QUEEN
Television	PALSONIC
Electric Motor	SCORPION ELECTRIC MOTOR
Television	PANGOO
Air-conditioner	ECLIPSE
Refrigerator/Freezer	LG

5. Results by Test Laboratories

Energy performance information supplied for registration purposes for the 75 models tested was based on test reports provided by 51 test laboratories. These test facilities (identified in Table 7) are located in 14 countries with the majority of tests conducted in China, as shown in Table 6.

Table 6: Location of test laboratories supplying reports to support product registration of tested products

Location of test laboratory	Country abbreviation	No of test reports
Australia	AUS	5
Austria	AUT	1
Brazil	BRA	1
China	CHN	25
Germany	DEU	3
Indonesia	IDN	1
Italy	ITA	2
Japan	JPN	3
Korea	KOR	5
New Zealand	NZL	1
Singapore	SGP	1
Taiwan	TWN	1
Turkey	TUR	1
United States of America	USA	2

Table 7: Name of test laboratories supplying reports to support product registration of tested products

Test Laboratory	Country
Alliance Laundry Systems Test Lab	USA
Altech	AUS
Arcelik AS	TUR
BTIHEA	CHN
Chigo	CHN
CMG Technology Laboratory	AUS
Comtest Laboratories	AUS
Electrical Properties Testing Laboratory, New Product Evaluation Laboratory, Quality Management Center	CHN
Fisher & Paykel Appliances Ltd. Performance Laboratory - Refrigeration	NZL
Fuzhou Wonder Electric Co. Type test Centre	CHN
Guangzhou Huesent Testing Services Co Ltd	CHN
Guangzhou Vikan Certification and Testing Institute (CVC - formerly GTIHEA)	CHN
Hengshui Electric Motor Co Ltd	CHN
INTERTEK	CHN
Korea Test Laboratory	KOR
Laboratorio Clima Delonghi	ITA
LG Electronics Indonesia QA Laboratory	IDN
LG Electronics Testing laboratory-Approvals	KOR

Liebherr Hausgerate Lienz GmbH	AUT
Metrology & Test Center of Hisense Kelon Electrical Holding Co., Ltd.	CHN
Midea Testing Centre	CHN
NEPG Co. Ltd.	CHN
Physikalisch-Technische Bundesanstalt	DEU
PSI Technologies(Shenzhen) Limited	CHN
PT&C(Product Testing and Compliance)	KOR
Rossi Motoriduttori S.p.A. - SEIMEC Electric Motor Division	ITA
SAMSUNG	KOR
SEW-EURODRIVE GmbH & Co KG	DEU
SGS Australia Pty. Ltd.	AUS
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab	CHN
Sharp Corporaton	JPN
Shenzhen Academy of Metrology and Quality Inspection	CHN
Shenzhen Bontek Electronic Technology Co., Ltd	CHN
SHENZHEN EMTEK CO., LTD.	CHN
Shenzhen Huatongwei International Inspection Co.,Ltd	CHN
Shenzhen Timeway Technology Consulting Co.,Ltd.	CHN
Siemens	DEU
Sony Corporation Home Electronics Company Laboratory	JPN
TATUNG	CHN
TCL Product Certification Laboratory	CHN
Tech Top Motrs Co. LTD	CHN
TECHTOP SHANGHAI TOP MOTOR CO. LTD.	CHN
TECO	TWN
Teco Electric & Machinery	SING
Test Laboratory of Gree Appliances Inc. of Zhuhai (GTL)	CHN
Unidentified	JPN
Vipac Engineers and Scientists Ltd	AUS
WEG	BRA
Whirlpool Refrigerator, Amana Division	USA
Wonder Motors	CHN
Wuxi Teco Electrics & Machinery Co Ltd	CHN

The following industry laboratories supported the claims for the models deemed to be non-compliant:

Table 8: Industry laboratories supporting registration for products deemed to be non-compliant

Test Laboratory	Country
Techtop Shanghai Top Motor Co. Ltd.	CHN
Midea Testing Centre	CHN

A further four independent laboratories also supported the claims for models deemed to be non-compliant and E3 will be bringing this to the attention of their relevant accreditation bodies.

6. Conclusions and Recommendations

Compared to the results from 1,000 check tests undertaken between 1991 and 2010, compliance rates from tests initiated in the first half of 2011 have improved. In 2011, 86% of products tested passed Stage 1 tests compared to 61% previously (see Figure 7). Similarly, 92% of all appliances were deemed to comply in 2011, compared to 69% in the preceding years (see Figure 8).

Comparison of the results also shows that compliance rates have increased for all categories of products common to both periods. In particular, there has been a noticeable improvement in the performance of air conditioners, which have historically been amongst the least compliant products. However a factor in the overall

improvement may be the addition of televisions and set top boxes where little testing has previously been conducted, and where experience and better knowledge may lead to better targeting of products more at risk of being non-compliant.

The policy of targeting check tests at products with an above average likelihood of non-compliance means that the results of tests are not a good indication of general compliance rates. However, since the process and criteria for selecting products for testing has remained consistent for many years, the improvement in compliance rates observed in 2011 could suggest that for some product categories there has been a trend towards greater compliance amongst the general stock of products regulated for energy efficiency.

Figure 7: Comparison of compliance rates for Stage 1 tests, 1000 check tests vs 1st half of 2011 results

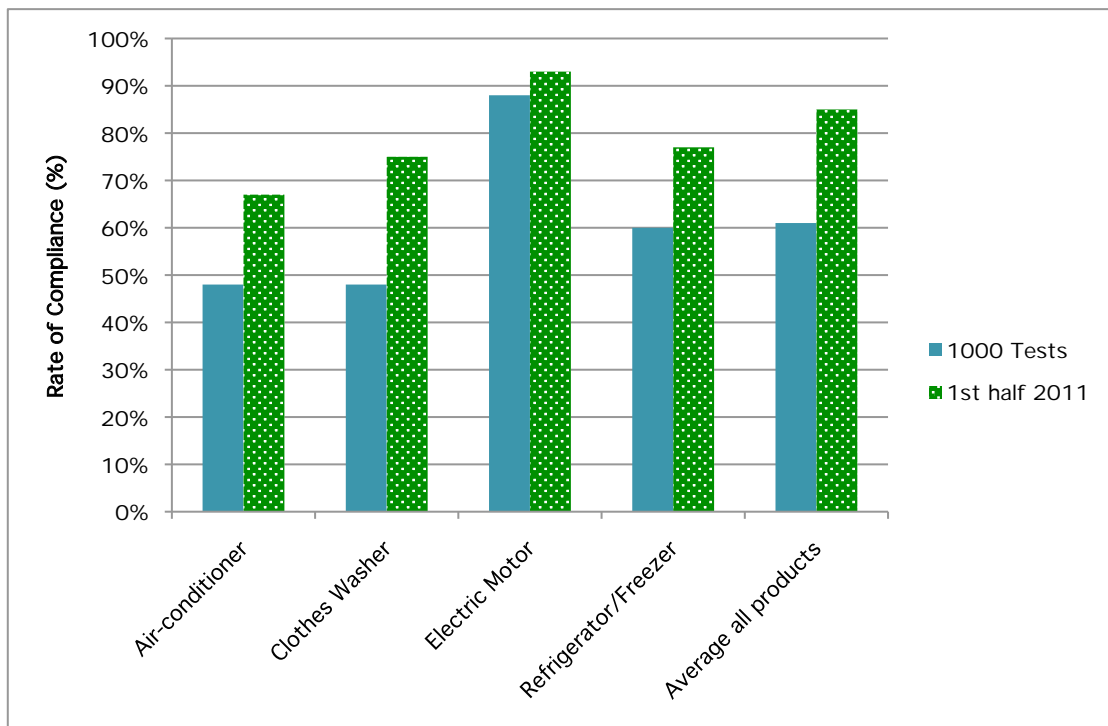
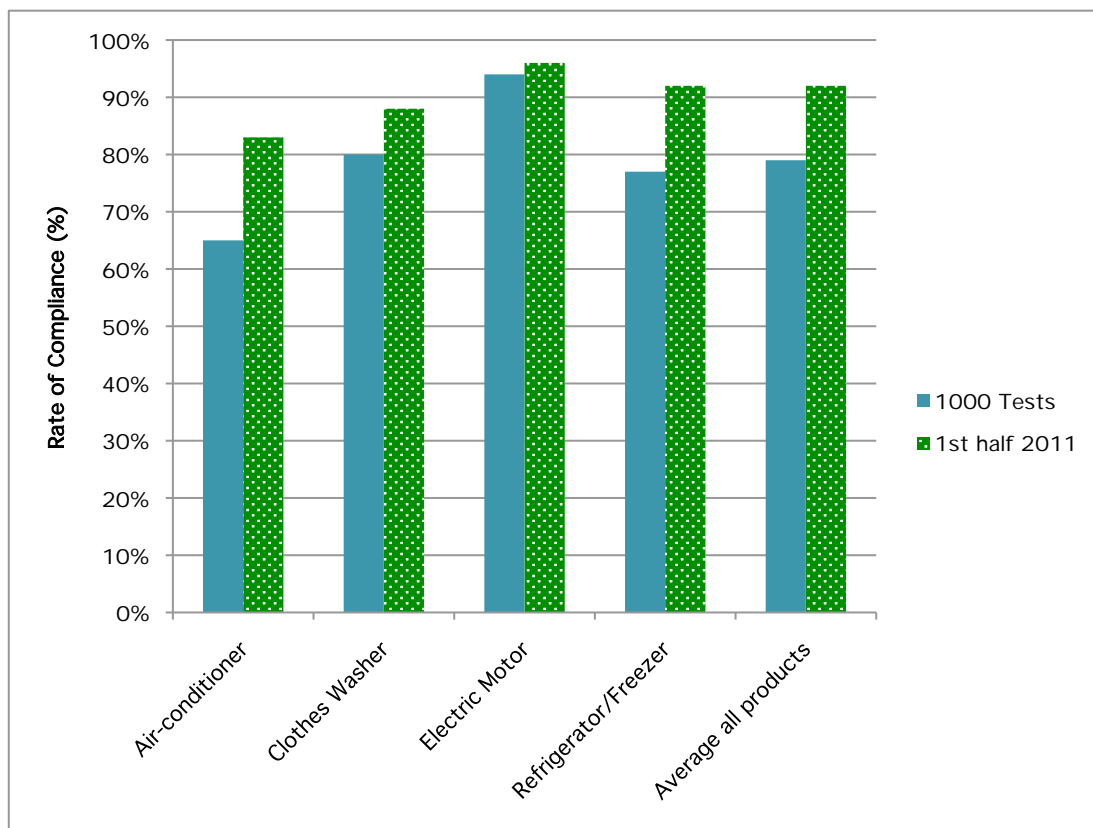


Figure 8: Comparison of compliance deemed to comply rates, 1000 check tests vs 1st half of 2011 results



The inclusion of results for newly regulated products goes towards satisfying one of the recommendations from 'Performance Verified' (see <http://www.energyrating.gov.au/library/details201105-1000-checktests.html>) that called for the more equitable distribution of check testing amongst all categories of regulated equipment. A further expansion of the testing program to include all regulated products is a priority over future months, while fewer tests could be targeted at those categories with a high compliance rate and a longer history of testing.

Other recommendations from 'Performance Verified' included undertaking further exploration of patterns of performance by individual brands; and investigating the reasons behind the different conversions rates from Stage 1 to Stage 2 tests results.

The historical analysis of the results by brand has been commissioned by E3 in the context of improving the criteria used to select models for testing. It should be noted that testing in 2011 spanned a wide range of brands and that none of the suppliers deemed to be non-compliant in the first half of 2011 has a history of supplying non-compliant products in Australia and New Zealand. A process

underway by E3 of updating the selection criteria should also better target non-compliant products and therefore improve the consistency between Stage 1 and Stage 2 results as well as improve record keeping on the selection of models for check testing.

A noticeable feature of products tested during 2011 is the wide diversity of laboratories that have provided test reports used by suppliers when registering product performance details. The use of laboratories in China is particularly evident, though perhaps not surprising given the large proportion of products manufactured in that country now sold in Australia. This diversity of new facilities pose a heightened risk of non-performance though that risk is already reflected in the product selection criteria. It also raises issues about how the E3 program best deals with non-compliance from off-shore facilities. In this regard, it may be worth considering whether establishing a public listing on the 'energyrating' website of facilities that originally supplied reports for registration purposes which subsequently failed checktesting. This public reporting might be in addition to the existing practice of sometimes withdrawing the right of that facility to lodge in the future test reports with the regulatory agencies as part of the registration process.