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REGULATED APPLIANCES MARKET PERFORMANCE REPORT - 2020

JANUARY, 2021

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FOREWORD

The Energy Commission (EC) is mandated by the ACT 541, 1997, among others to promote energy efficiency in all sectors of the economy which finds expression in the new global order to stem the tide of global warming. In living up to its mandate, the Commission has, over the years, taken measures to introduce a mandatory appliance standard and labelling (S&L) regime in the country. The main objectives of the S&L regime are; to prevent the influx of substandard appliances onto the market, to provide the consumer of a regulated electrical product, the needed information to make an informed choice regarding the running cost of the product, and to fulfill environmental treaty commitments. The labels give information on star rating depicting the efficiency level, rated annual power consumption, country of origin, among others. Additionally, under this regime, dealers of regulated electrical appliances are required, by law, to import and sell only products that meet the minimum energy performance standards.

To obtain an effective S&L regime, the Inspection and Enforcement Unit (IEU) of the Renewable Energy, Energy Efficiency and Climate Change Directorate (REEECC) has been empowered to undertake compliance monitoring, verification, and enforcement with the main objective to sanitize the appliance market and reduce energy consumption in general which would translate into a reduction in the energy intensity of the Ghanaian economy and thereby promote a safe environment.

The market performance measurement forms part of regulating and transformation process of the appliance market in Ghana. Market performance measurements play a key role to gauge energy efficiency improvement and identification of success and failure factors for further action. It indicates parameters such as price, star rating, volume, and appliance types. It also indicates the performance of dealers in the regulated appliance market.

We expect that the analysis and data produced will be useful to a wide range of users including academia, importers, manufacturers, dealers, policymakers, and researchers.

We would appreciate very much any feedback by way of comments and suggestions from readers and users of the report.

This publication is also available on our website www.energycom.gov.gh.

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DECEMBER 2020

Contents

1.0 Introduction

Standards and Labelling regime for regulated appliances was introduced in Ghana to enable customers to make informed choices when purchasing regulated appliances. Appliances importers are also required to import and sell appliances that meet, at least, the minimum energy performance standards. Also, when customers are well informed, Standards and Labelling stimulates competition to provide patrons with the most efficient appliances. Furthermore, labelling of appliances supports enforcement of the standards by allowing regulators to spot anomalies if the regulated appliances are un-labelled or mislabelled.

The propensity for retailers to buy and sell appliances without technical documentation, unlabelled or mislabelled exists, a situation that requires persistent market surveillance to check compliance with the standards. The market surveillance and compliance monitoring exercise form part of regulating and transformation process of the appliance market in Ghana. Market performance measurements play a key role in gauging energy efficiency improvement and identification of success as well as failure factors for further action including, reformation or suspension of programme or policy instrument.

The dynamics of the appliances market vary based on changing global trends and other factors. Market performance exercises inform regulatory institutions of specific challenges encountered by appliance importers and retailers. Parameters such as price, star rating, volume, appliance types, and frequently asked questions from customers and retailers propel programme implementation strategies to remedy those issues. Also, market dynamics inform policy direction with the introduction of new programs, incentive mechanisms, and review of standards.

Another specific facet of the market performance measurement activity is an awareness-raising campaign on standards and labelling, certified appliances application (APP), energy efficiency, and conservation among shop owners and their assistants. Retail shop managers and their attendants are encouraged to pass on the information and educate the customers who visit appliance showrooms. The new regulated appliances use less energy and have better health implications. This activity offers continuing education for the general public to understand and adopt new energy-efficient appliances at a relatively low cost. It is against this backdrop that market surveillance and compliance monitoring exercise was undertaken from 31st October 2020 to 5th December in 2020.

1.1 Objective

The overall objective of the exercise was to determine the current market compliance performance levels of importers and retailers of regulated appliances on the appliances market in the country. The specific activities undertaken include;

- Collection of data on new appliance retail shops and make them available in the appliances database and the related APP.
- Computing the compliance level of each appliance shop for the subsequent update in the APP.
- Introducing and explaining the concept of the updated appliance database with the related APP to distribution and retails shops owners to assist them to acquire approved models from importers.
- Educating shop attendants and managers in distribution and retail outlets on standards and labelling.
- Distribution of energy guide and "use electricity wisely" flyers.
- Identifying non-compliant appliance importers and retailers for subsequent enforcement actions.

1.2 Methodology

The Country was divided into three zones and each zone was covered in a separate exercise.

The team visited selected regulated appliances distribution and retail outlets in selected cities and towns in each zone. The team took inventory of all unique models of air conditioners and refrigerating appliances being sold in the shops through the use of questionnaires. The availability of approved technical documentation of each model of regulated appliances was checked. Labelling status according to the approved standards of each unique model available on display was ascertained. The compliance level of a typical retail shop is expressed as the sum of all appliances with approved technical documentation and correct label as a percentage of total available regulated appliances on display in the showroom.

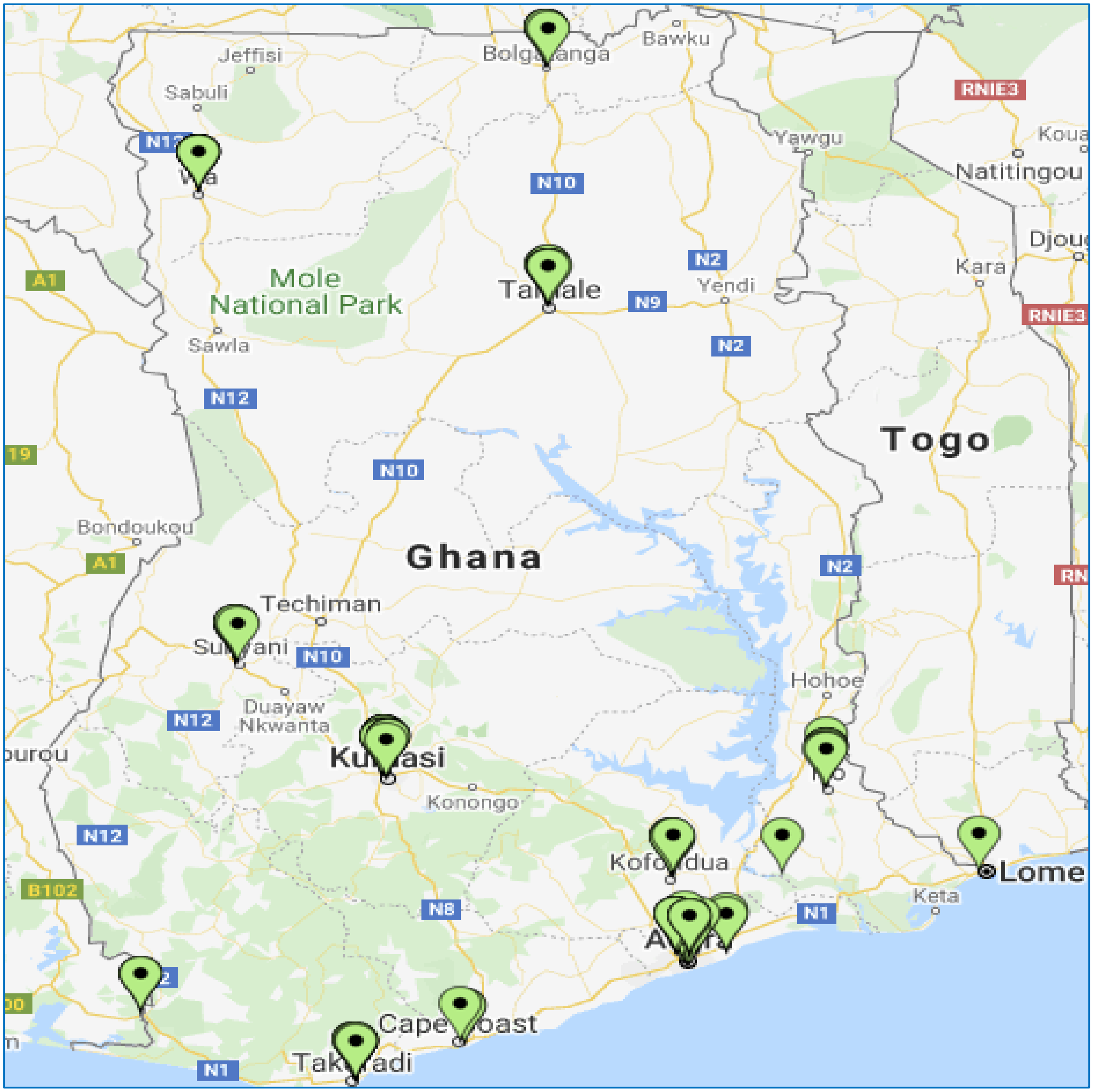
2.0 Summary of Key Findings

- The data collection exercise was conducted in 11 selected cities and 2 border towns from 10 regions which involved 177 distributing and retail outlets.
- The compliance level of Test Report availability of all refrigerating appliances identified on the market was 97.01 %.
- Test Report availability compliance level for all models of Air conditioners identified is 97.97%
- Refrigerating appliances labelling compliance level in all retail outlets or shops was 95.53% while that for air conditioners was 94.73%
- The total number of regulated appliances surveyed in all the distribution and retail outlets across the Country is 3,667 comprising 3,165 refrigerating appliances and 502 air conditioners.
- The total number of shop attendants and managers trained in standards and labelling was 162.
- 21 new distribution and retail outlets representing 11.86% of all appliances shop visited were identified.
- A total of 543 "use electricity wisely" and "Refrigerating Appliance Standards and Labelling" flyers were distributed in all the distribution and retail shops.
- 25 shop managers and attendants were assisted in downloading the Certified Appliances APP.
- 195 non-compliant refrigerating appliances were identified comprising 71 with no approved technical documentation and 124 with labelling non-compliant issues.
- 50 non-compliant air conditioners comprising 11 with no approved technical documentation and 39 with labelling non-compliant issues were identified.
- The average annual rated power consumption of identified refrigerating appliances on the Ghanaian market was **351.28kWh**

2.1 Locations of Shops Visited

Selected regional capitals were identified as a representation of the regional performance of appliance market compliance measurement. It can be deduced from the map depicted in figure 2.1.1 that sales of refrigerating appliances and air conditioners are concentrated mostly in the southern part of the country. Greater Accra and Ashanti Regions are the leading regions in the sale of regulated appliances. Figure 2.1.1 shows a map depicting the geographical location of each of the retail outlets by plotting the GPS coordinate of the outlets or shops on google map.

Figure 2.1.1 Geographical Location of Appliance Retail Outlets or Shops



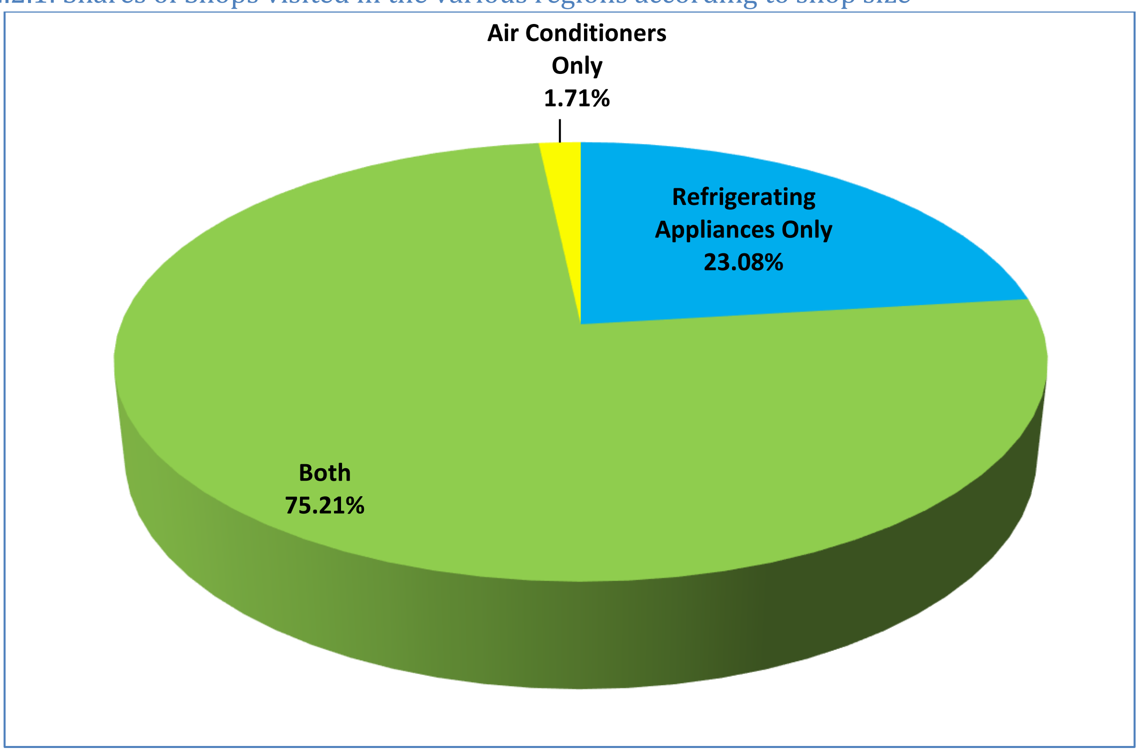
2.2 Characteristics of Shops Visited

Classifications of the appliance shops and retail outlets were done according to the availability of regulated appliances. Out of the 177 shops visited, 27 representing 23.08% sell only refrigerating appliances, 2 representing 1.71% sell air conditioners only, and 88 representing 75.21% sell both refrigerating appliances and air conditioners. Apart from refrigerating appliances and air conditioners, most of these retail shops sell other electrical appliances including television sets, sounds systems, household kitchen appliances, washing machines, microwaves, rice cookers, standing and ceiling fans, etc.

In terms of shop sizes, appliance shops with total unique models available in the showroom below 10 are classified as small, between 10 and 20 are classified as medium and those with 20 or more unique models are classified as big shops. Data obtained indicate that 12.17% were small, 31.3% were medium and 56.52% were big.

Figure 2.2.1 shows shares of the appliances shops in terms of types of regulated appliances available in showrooms.

Figure 2.2.1: Shares of Shops visited in the various regions according to shop size



3.0 Details of Surveyed Appliances on Sale

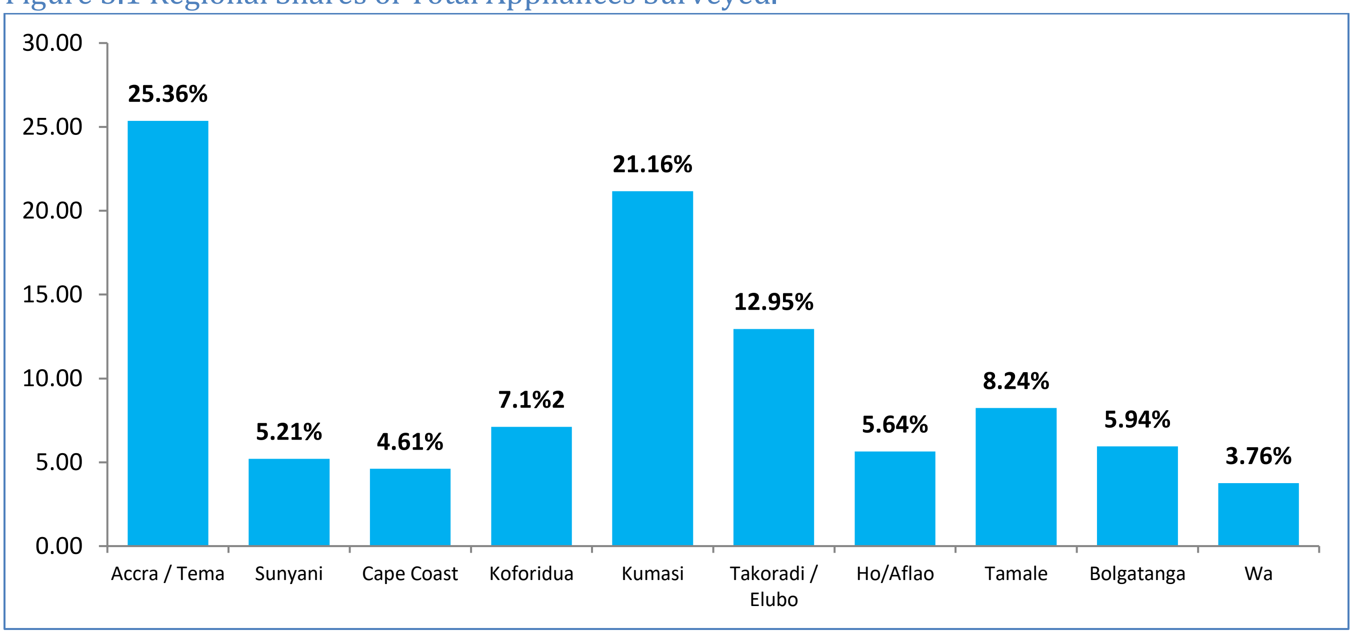
A total of 3,667 appliances were captured comprising 3,165 refrigerating appliances and 502 air conditioners out of which 25.36% were from Accra and Tema metropolis making it the predominant appliance market. Kumasi in the Ashanti Region recorded 21.16% making it the 2nd dominant appliance market in the country.

Table 3.1 and figure 3.1 show the total number of appliances captured in various shops in the regions and their respective regional capital shares.

Table 3.1 Regional breakdown of Appliances Surveyed

	Refrigerating Appliances		Air Conditioners			
Location	**Number of Shops**	**Number of Refrigerators**	**Number of Shops**	**Number of Air Conditioners**	**Total Appliances**	**Share (%)**
Accra/Tema	24	801	19	129	930	25.36
Sunyani	8	166	6	25	191	5.21
Cape Coast	4	161	3	8	169	4.61
Koforidua	8	242	7	19	261	7.12
Kumasi	21	650	18	126	776	21.16
Takoradi/Elubo	16	421	10	54	475	12.95
Ho/Aflao	10	176	6	31	207	5.64
Tamale	11	232	11	70	302	8.24
Bolgatanga	6	193	6	25	218	5.94
Wa	7	123	3	15	138	3.76
Total	**115**	**3,165**	**89**	**502**	**3,667**	**100.00**

Figure 3.1 Regional Shares of Total Appliances Surveyed.



4.0 Compliance Level Analysis

4.1 Test Report and Labelling Compliance Level for Refrigerating Appliances

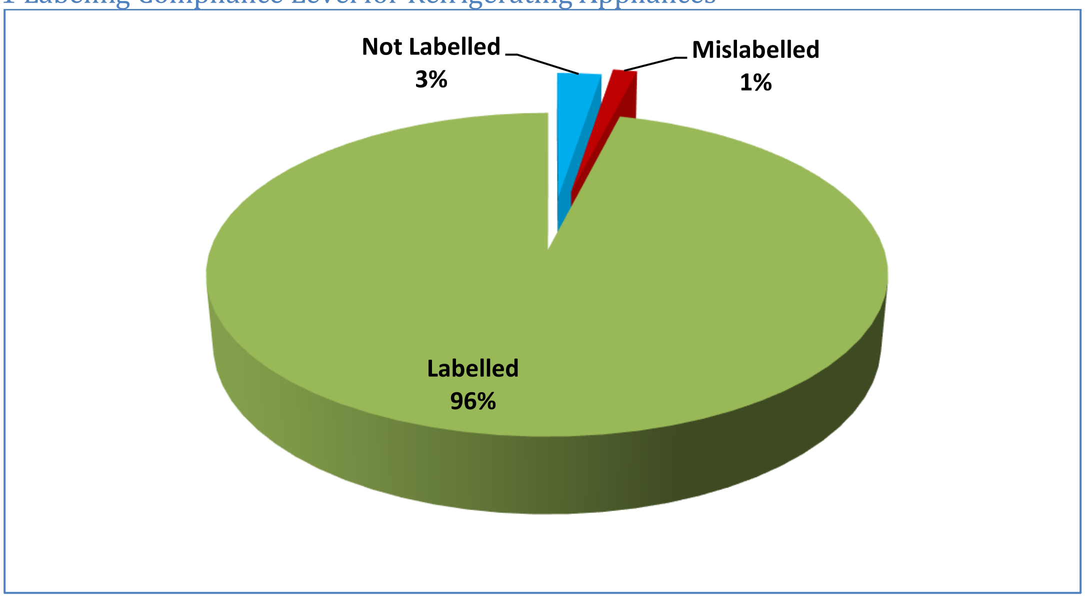
Availability of approved technical documentation of appliance model is a primary requirement for regulated appliance imports. Out of the 3,165 total refrigerating appliances identified, 3,092 constituting 97.01% had approved technical documentation and 73 constituting 2.99% had no test reports hence could not be verified to determine whether they meet minimum standards required of refrigerating appliances on the Ghanaian market.

4.2 Labelling Compliance Level for Refrigerating Appliance Models

Labelling compliance plays a key role in the appliance market transformation hence critical attention is required to spot abnormalities in the information available on the labels displayed on each appliance.

3,041 refrigerating appliances constituting 96.0% out of the 3,165 were properly labelled, 80 constituting 3.0% had no labels and 44 constituting 1.0% were mis-labelled. Figure 4.2.1 shows the shares of labelling compliance level of the refrigerating appliances.

Figure 4.2.1 Labeling Compliance Level for Refrigerating Appliances

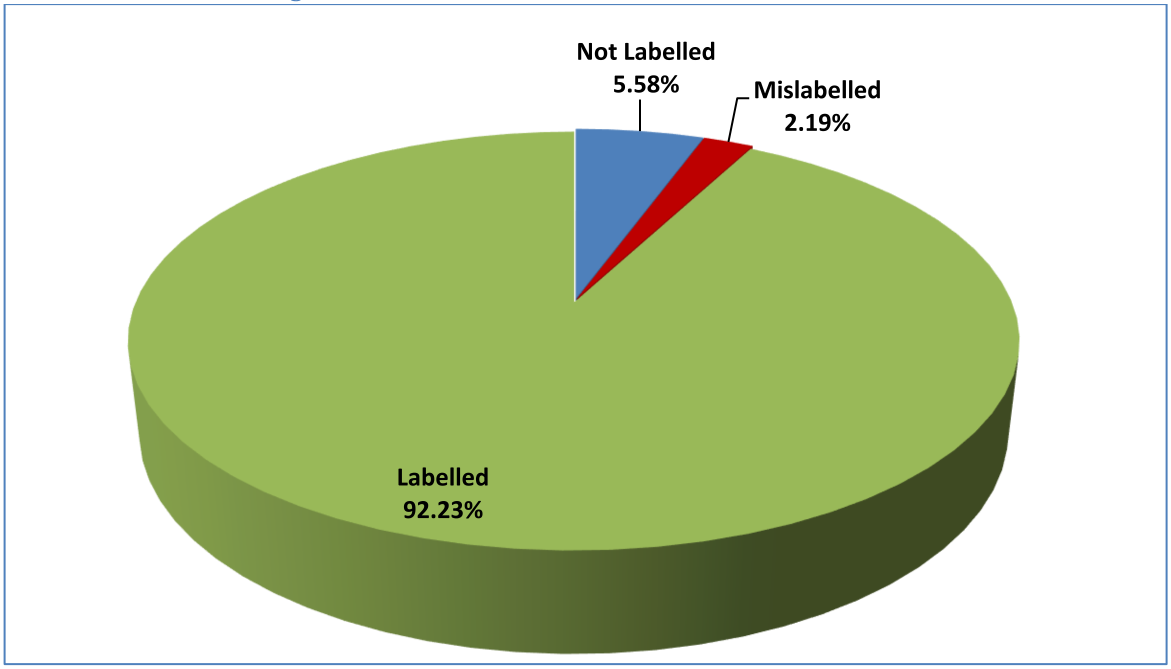


4.3 Test Report and Labelling Compliance Level for Air Conditioners

Out of the 502 total air conditioners surveyed, 491 constituting 97.94% had test reports, and 11 constituting 2.06% had no test reports hence could not be verified to determine whether they meet the minimum standards required of air conditioners on the Ghanaian market.

Concerning labelling, 463 appliances out of the 502 constituting 92.23% were properly labelled, 28 constituting 5.58% had no labels and 11 constituting 2.19% were mis-labelled. Figure 4.3 shows shares of labelling compliance levels for air conditioners.

Figure 4.3.1 Shares of Labelling Characteristics of Air Conditioners



4.4 Labelling and Test Report Compliance of Refrigerating Appliances by Retail Shops

Test report compliance level for a retail shop is expressed as the sum of appliances with approved test reports available as a percentage of total appliances displayed in the shop. This measure is ascertained and made available in the certified appliance registry with the related application (APP) to boost customers' confidence in patronizing appliances sold by shops with high test report availability, labelling, and overall compliance levels.

Labelling compliance level was measured based on the label status of each refrigerating appliance physically displayed in the shop. The overall appliance shop compliance is determined by finding the average compliance levels concerning technical documentation and labelling.

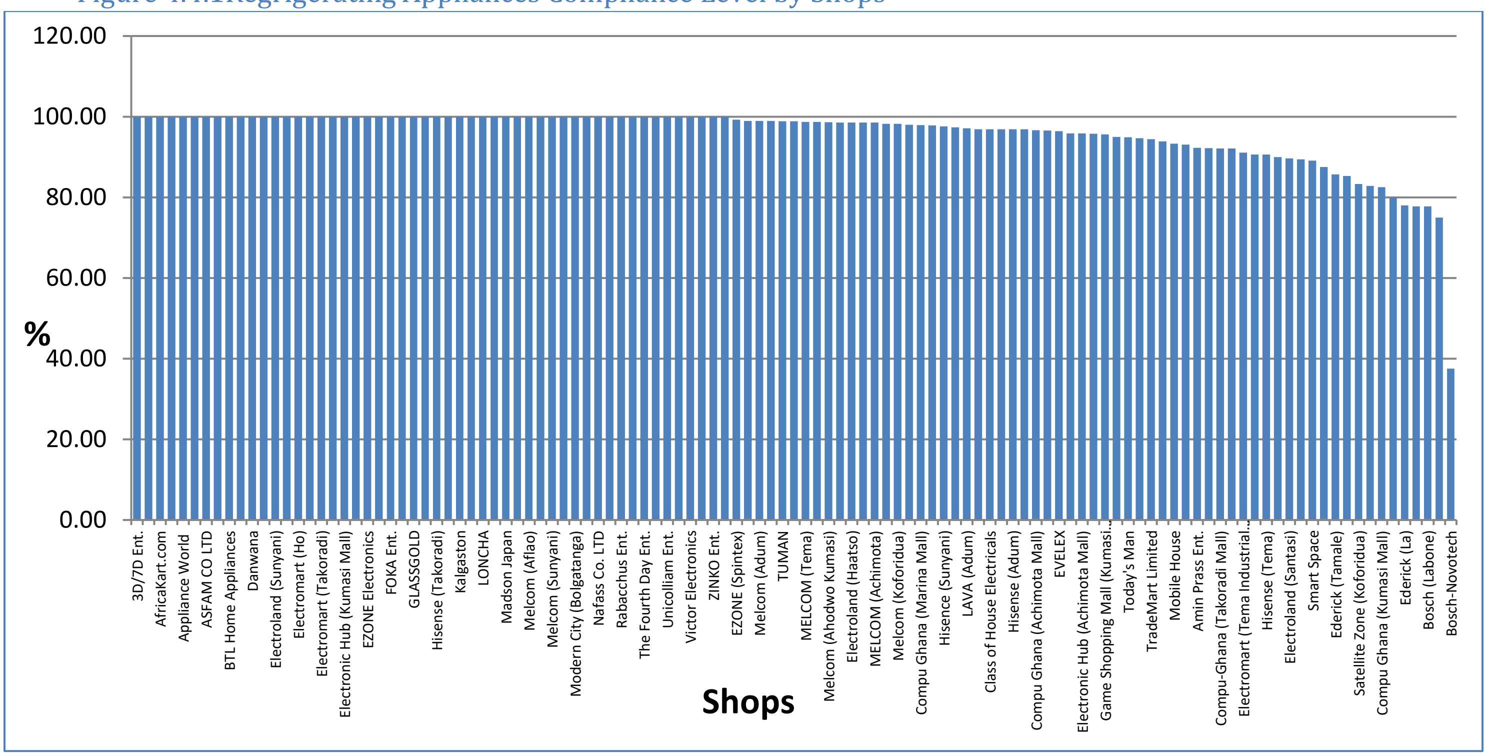
Nationally, as shown in table 4.4, the overall compliance level of a typical retail shop of regulated appliances (refrigerators) is 95.78%. This trend is uniform among all regional capitals. None of the regions recorded below 90% overall compliance level. The overall performance by shops was impacted by labelling noncompliance levels since test report compliance was significantly high across the regions. 3 regions recorded 100% test report compliance levels and the remaining 7 locations recorded 90% and above.

Mis-labelled appliances were mostly in terms of a difference in the star ratings and annual power rating as compared to that in the test reports available at the Commission. As depicted by figure 4.4.1, only one shop dealing in refrigerating appliances recorded below 75% overall compliance.

Table 4.4.1 National and Regional Retail Shops Labelling and Test Report Compliance Levels

Location	Refrigerating Appliances		Average Compliance Level (%)		
	Number of Shops	Number of Refrigerators	Test Report	labelling	Overall
Accra / Tema	24	801	94.12	94.2	94.16
Sunyani	8	166	100	94.4	97.2
Cape Coast	4	161	98.94	98.94	98.94
Koforidua	8	242	99.74	93.58	96.66
Kumasi	21	650	94.57	91.69	93.13
Takoradi / Elubo	16	421	95.04	97.98	96.51
Ho/Aflao	10	176	99.74	95	97.37
Tamale	11	232	100	90.67	95.34
Bolgatanga	6	193	100	95.5	97.75
Wa	7	123	100	100	100
National	**115**	**3,165**	**97.01**	**94.55**	**95.78**

Figure 4.4.1Regrigerating Appliances Compliance Level by Shops



4.5 Test Report and labelling Compliance of Air Conditioners by Retail Shops

High compliance level in retail shops or outlets dealing in the sale of Air Conditioners was recorded in a similar vein as the refrigerating appliances.

The overall compliance level of an air conditioner retail shop on the national level is 96.33%. Three regional capitals recorded 100% overall compliance levels and the remaining 7 locations did not record below 94% overall compliance.

As shown in both table 4.5.1 and figure 4.5.1 compliance level of a shop dealing in the sale of air conditioners is above 60%.

Table 4.5.1 National and Regional Compliance Levels of Dealers of Air Conditioners

Location	Air Conditioners		Average Compliance Level (%)		
	Number of Shops	Number of Air Conditioners	Test Report	labelling	Overall
Accra / Tema	19	129	97.18	92.24	94.71
Sunyani	6	25	95.83	100	97.92
Cape Coast	3	8	100	100	100
Koforidua	7	19	100	100	100
Kumasi	18	126	96.24	94.68	95.46
Takoradi / Elubo	10	54	98.75	91.25	95
Ho/Aflao	6	31	100	97.22	98.61
Tamale	11	70	97.73	91.97	94.85
Bolgatanga	6	25	100	94.44	97.22
Wa	3	15	100	100	100
National	**89**	**502**	**97.94**	**94.73**	**96.33**

Figure 4.5.1 Air Conditioners Overall Compliance Levels by Shops

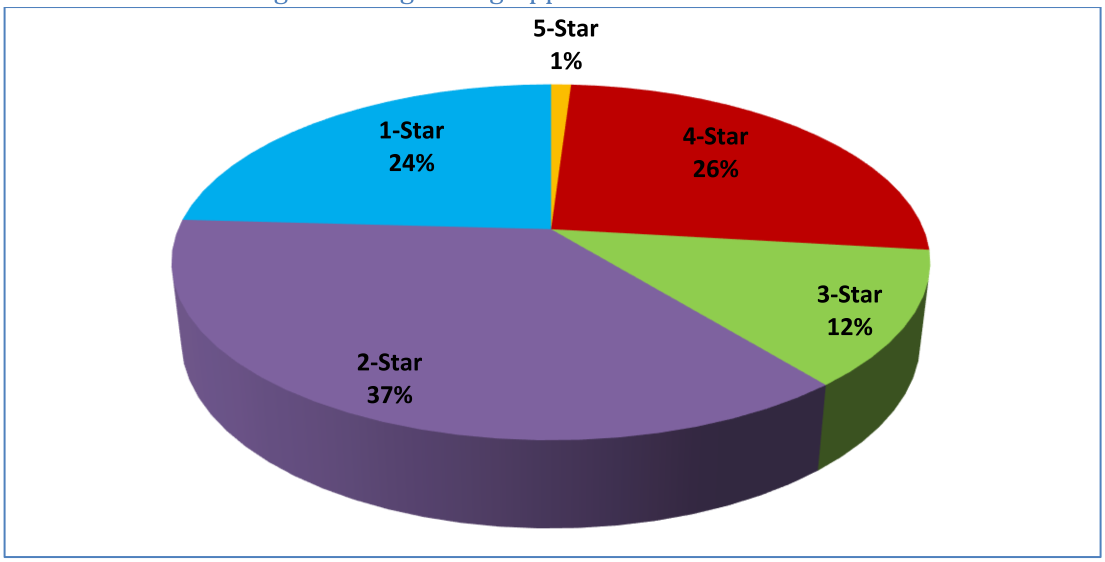
5.0 Star Ratings, Refrigerants and Climatic Classes of Refrigerating Appliances

About 37% of the approved refrigerating appliances were 2-Star making it the predominant rating of refrigerating appliances on the market while 4-Star and 1-Star recorded 26% and 24% respectively. As illustrated in figure 5.1.1, 12% were rated 3-Star while about just 1% were 5-Star.

The Sub-tropical (ST) climate class constituted 87% of all refrigerating appliances while 13% had tropical (T) climatic class specification.

Concerning refrigerants, three main refrigerants were identified in the refrigerating appliances. These were R600a, R134a, and R290 refrigerants. It came to light that R600a was available in 94% of the refrigerating appliances making it the predominant refrigerant on the market while R134a accounted for 5% and R290 accounted for just about 1%.

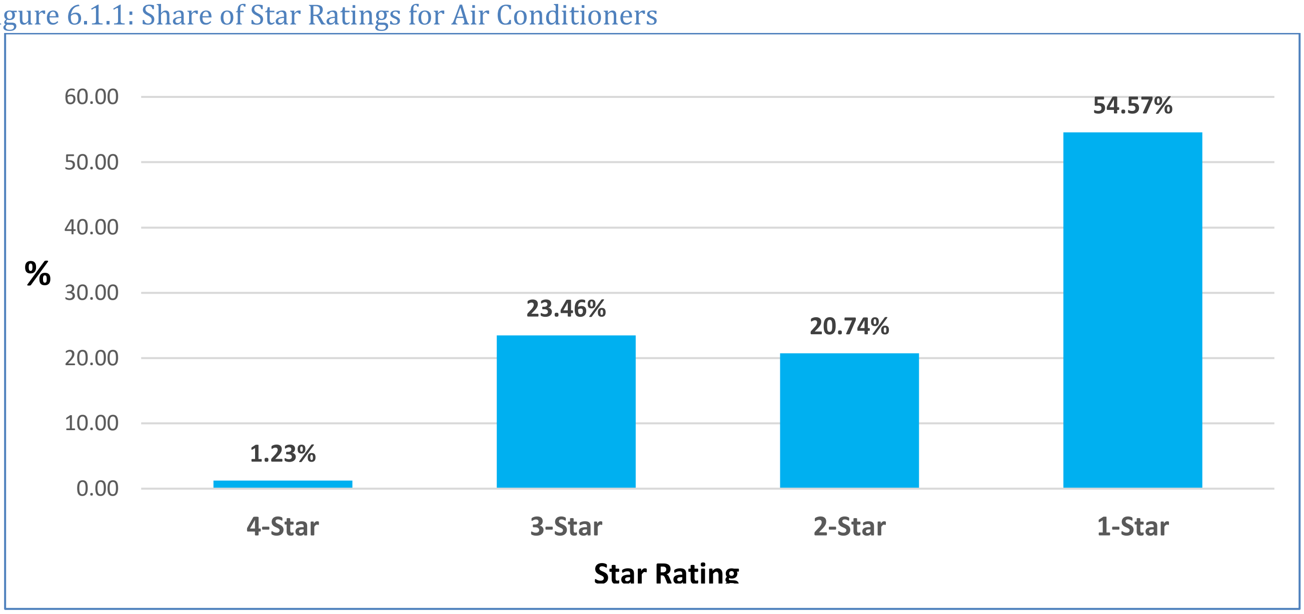
Figure 5.1.1: Share of Star Ratings of Refrigerating Appliances



6.0 Star Ratings and Refrigerants of Air Conditioners

There were no 5-Star rated air conditioners identified on the market. However 1.23% were rated 4-Star, 23.46% were 3-star rated, 20.74% were of 2-Star rated category and 54.57% were rated 1-Star. This makes the 1-Star the predominant rated air conditioner available on the Ghanaian appliance market. Figure 6.1.1 shows the shares of star ratings of air conditioners surveyed on the market. Refrigerants available in Air Conditioners however are either R22 or R410a. R410a accounted for 56% while R22 accounted for 44% of refrigerants available in Air conditioners.

Figure 6.1.1: Share of Star Ratings for Air Conditioners



7.0 Volume, Annual Rated Power Consumption, and Prices of Refrigerating Appliances

Refrigerating appliances' volume, rated power consumption, and prices are the primary parameters considered by consumers in making purchasing decisions. Also, the availability of data and information on these parameters aid in the formation and implementation strategies of energy efficiency programs and besides contribute to measuring the transformation levels of the appliance market. Results obtained on the market relating to the above-mentioned parameters are depicted in table 7.1.

Table 7.1: Volume, Annual Rated Power Consumption, and Price Range of Refrigerating Appliances

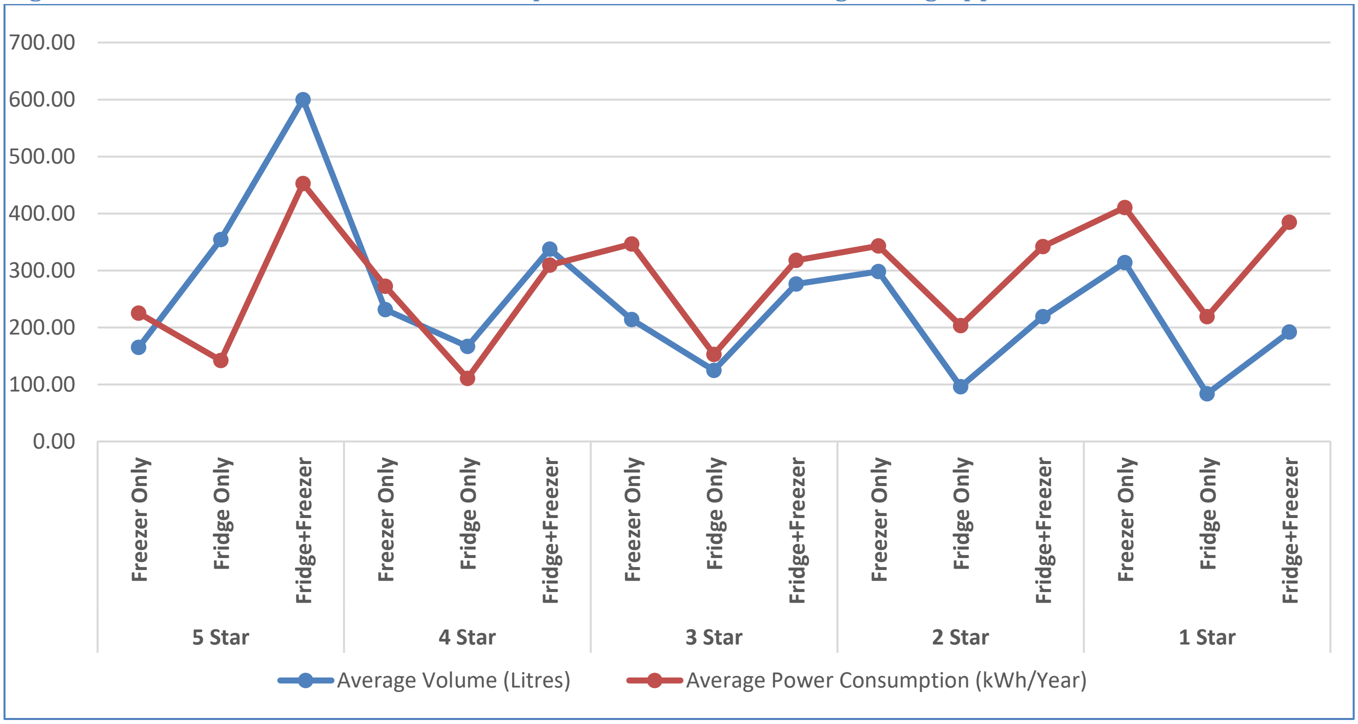
Star Rating	Fridge Type	Rated Power Consumption (kWh/Year)			Total Volume / litre			Price (GHS)		
		Min	Ave	Max	Min	Ave	Max	Min	Ave	Max
5 Star	*Freezer Only*	225.0	225.0	225.0	165.0	165.0	165.0	1,299	1,525.9	1,799
	Fridge Only	112.0	142.0	172.0	346.0	354.5	363.0	4,750	5,168.0	5,586
	Fridge+Freezer	450.0	452.5	455.0	592.0	600.0	608.0	5,999	7,271.0	8,300
4 Star	*Freezer Only*	190.0	272.4	475.0	142.0	231.5	345.0	749	1,706.2	5,569
	Fridge Only	100.0	110.7	142.0	45.0	166.7	375.0	599	1,122.0	4,999
	Fridge+Freezer	151.0	309.5	482.0	59.0	337.7	937.0	769	3,319.9	13,799
3 Star	*Freezer Only*	219.0	346.4	456.0	53.0	227.4	418.0	1,439	1,868.3	4,300
	Fridge Only	117.0	152.5	259.0	43.0	124.4	207.0	580	988.8	1,999
	Fridge+Freezer	135.0	317.8	690.0	57.0	276.5	852.0	600	2,634.7	7,999
2 Star	*Freezer Only*	140.0	343.3	635.0	63.0	298.1	708.0	799	1,858.3	4,000
	Fridge Only	112.0	203.1	362.0	45.0	96.0	150.0	595	846.9	1,299
	Fridge+Freezer	146.0	341.9	719.0	53.0	219.2	517.0	143	1,814.8	9,969
1 Star	*Freezer Only*	150.0	410.2	906.0	42.0	313.8	867.0	699	1,834.3	5,580
	Fridge Only	212.0	219.0	226.0	80.0	83.8	92.0	575	712.8	1,299
	Fridge+Freezer	130.0	384.8	730.0	45.0	192.2	506.0	599	1,293.8	4,999

7.1 Storage Volume and Annual Rated Power Consumption of Refrigerating Appliances

Refrigerating appliances' storage volumes vary in terms of fresh and frozen compartments. Data obtained indicate that 29% have frozen volume only, 8% have fresh volume only and 63% have both fresh and frozen compartments. Appliances with frozen volume only are referred to as freezer-only appliances, that with fresh volume only as fridge-only, and appliances with both fresh and freezer volumes are termed as a fridge-freezer. Factors that influence refrigerating appliances' rated power consumption comprise mainly volume size, volume type, and energy efficiency index level. Figure

7.1.1 shows the relationship between average volume and average power ratings according to storage type and energy efficiency ratings.

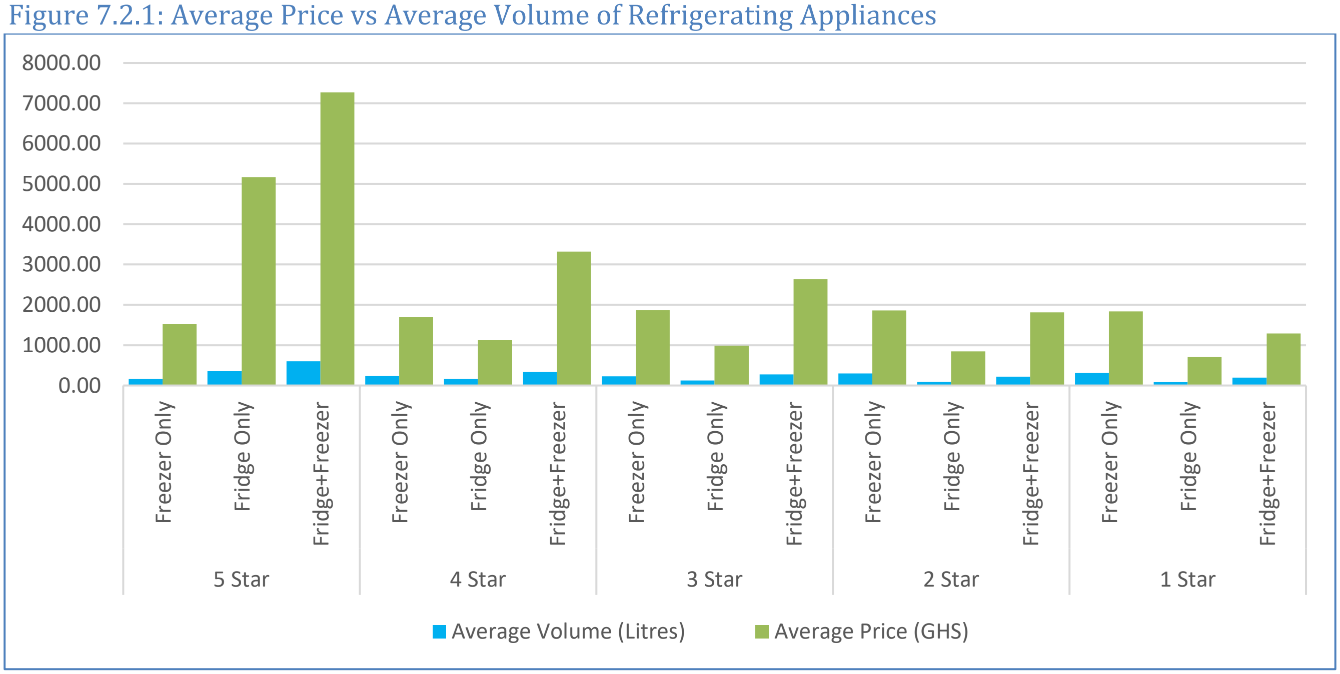
Figure 7.1.1: Annual Rated Power Consumption vs Volume of Refrigerating Appliances



7.2 Prices by Volume and Star Rating of Refrigerating Appliances

Prices of refrigerating appliances vary according to volume and star rating. It is expected that an appliance with a relatively high volume and high energy efficiency star rating will attract a relatively high cost. Data obtained from the market assert this fact as depicted by figure 7.2.1.

Figure 7.2.1: Average Price vs Average Volume of Refrigerating Appliances



8.0 EER, Cooling Capacity, Rated Power Consumption and Prices of Air Conditioners

The main parameters affecting consumers' purchase decisions of air conditioners include price, cooling capacity, and rated power consumption. To the ordinary citizen in the country, it is often preferred to use horsepower ratings instead of the cooling capacity to differentiate the heat load of the air conditioner. These parameters are easily assessed on the labels and the nameplate of the appliance. Data obtained from the field indicates 43.21% of total air conditioners surveyed were 1.5 horsepower (1.5 HP) rated making it the dominant horsepower category of air conditioners available on the Ghanaian market. For the others, 29.63% were 2.0 horsepower (2.0HP) rated, 23.70% were 2.5 horsepower (2.5HP) rated, 1.73% were 1.0 horsepower (1.0HP) rated, 0.25% were 3.0 horsepower (3.0HP) rated and 1.48% were above 3.0 horsepower (>3.0 HP) rated.

8.1 Prices vs EER vs Rated Power Consumption of Air Conditioners

Available data from the market indicate a directly proportional relationship between EER, Star Rating, and Price of a typical air conditioner. Rated power consumption is however inversely proportional to the EER and Star Rating of air conditioners on the Ghanaian market. It can be deduced that the higher the EER the more efficient the appliance is, the lower the rated power, and the relatively high initial price required to purchase the appliance. Table 8.1.1 illustrates the relationship between EER, Rated Power consumption, and Price of Air Conditioners.

Table 8.1.1 Prices vs EER vs Rated Power Consumption of Air Conditioners

Star Rating	Average EER	Average Cooling Capacity	Average Price (GHS)	Average Rated Power Consumption (kWh/Yr)
1 - Star	2.87	4.83	2,553.22	3,347.44
2 - Star	3.23	4.64	2,934.19	2,949.72
3 - Star	3.51	5.02	2,669.81	2,849.30
4 - Star	3.83	5.05	3,775.00	2,701.20

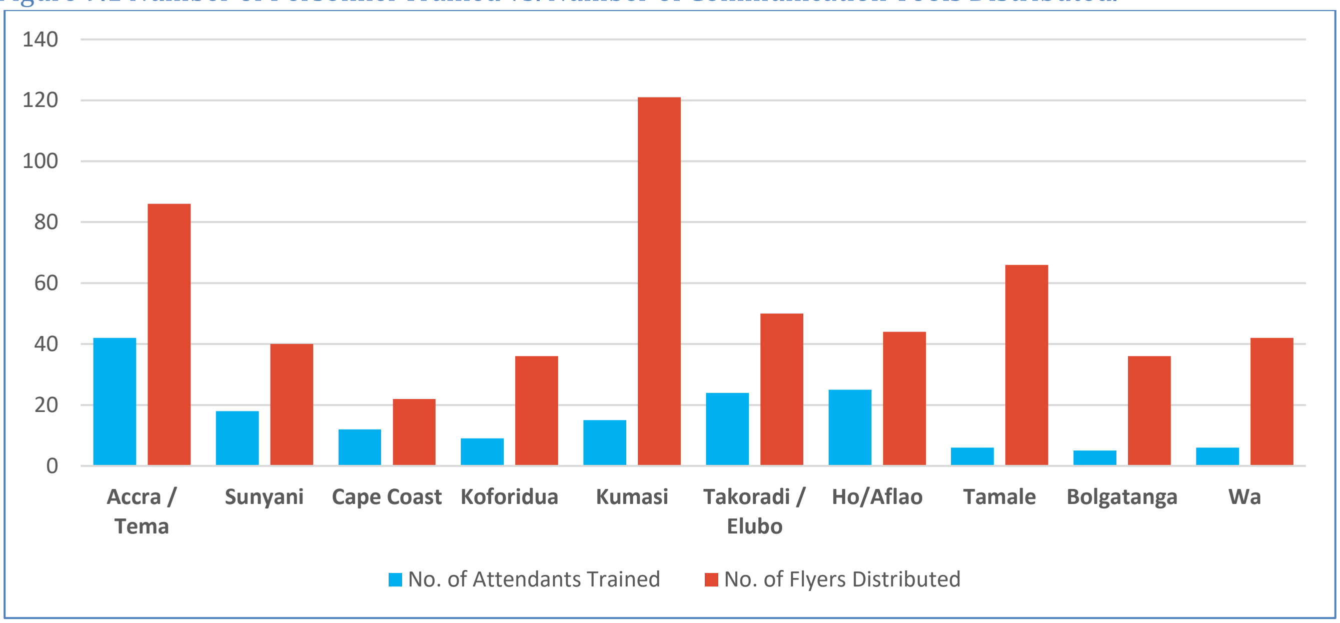
9.0 Awareness Creation on Standards and Labelling

Awareness campaigns play a fundamental role in changing habits for the adoption of energy-efficient appliances. Market surveillance activities offer the opportunity for continuous sensitization and education aimed at shop owners, shop attendants, and some available customers. When shop owners and their attendants are properly educated and equipped with special communication assets including flyers and posters, the acquired information is easily transferred to visiting and potential customers of regulated appliances. Hence, training of shop attendants and their managers has become a constant feature of the market performance measurement activities. Additionally, the turnover rate of shop attendants and frequent opening of new distribution and retails shops with new staff require education in the appliances standards and labelling. Two key communication tools ("Use Electricity Wisely" and "Refrigerating Appliances Standards and Labelling" flyers) were used for the awareness campaign.

Another facet of the sensitization exercise was assisting shop attendants and most importantly, shop managers, to download the "certified appliances application (APP)" from the google play store and educate them on how to use it to verify regulated appliances before acquisition from importers. Positive responses were received from nearly all shop managers on the effectiveness of the appliances database with the related application for regulated appliances verification.

In all, 162 personnel were trained, 543 communication tools were distributed and 25 shop managers were assisted to download the "Certified Appliances Application (APP)". Figure 9.1 shows the number of personnel educated and communication tools distributed in various cities and towns visited during the exercise.

Figure 9.1 Number of Personnel Trained vs. Number of Communication Tools Distributed.



10.0 Refrigerating Appliances and Air Conditioners Market Overview.

10.1 Appliance Retail Market Overview

It is evident from the data obtained during this exercise that continuous effort is being made in the appliance market transformation in Ghana. Compliance levels among retailers of regulated appliances are quite significant. It can be deduced that a potential customer is between 93 – 95% assured of obtaining an approved and efficient refrigerating appliance and between 94 – 96% assured of obtaining an approved and efficient air conditioner from the appliance market. Figures 10.1.1 and 10.1.2 show the compliance performance of retailers of refrigerating appliances and air conditioners respectively on a regional and national level.

Figure 10.1.1: Retail Shops Compliance Performance for Refrigerating Appliances

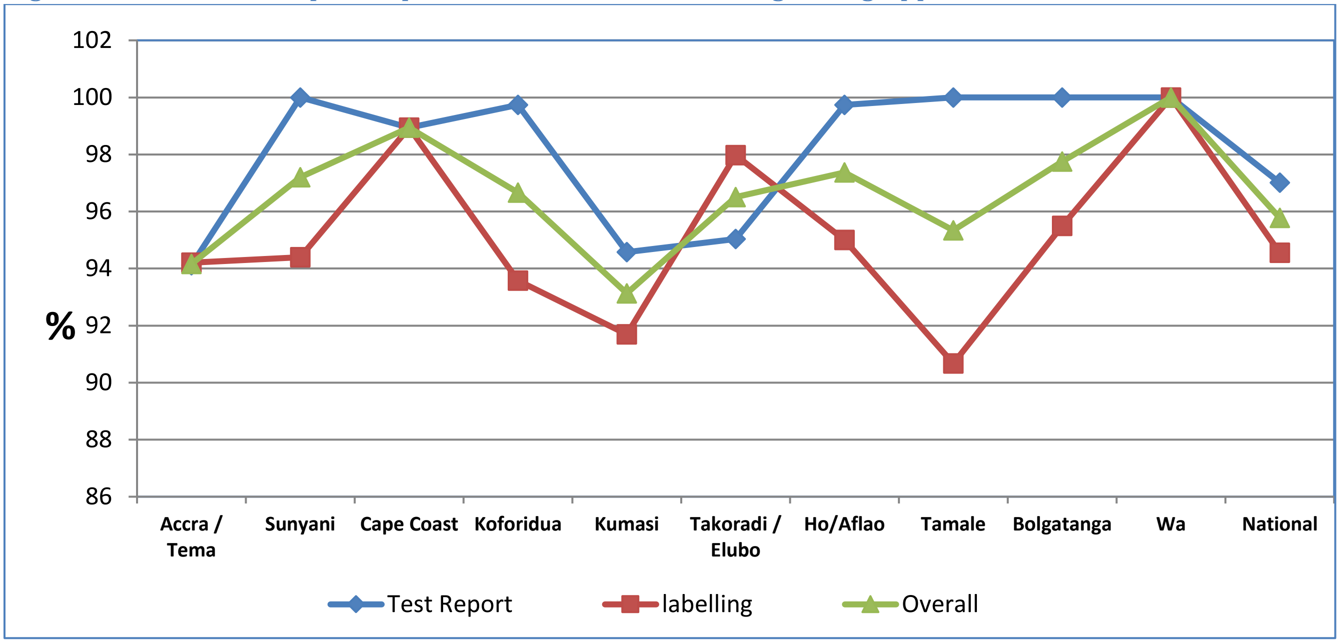
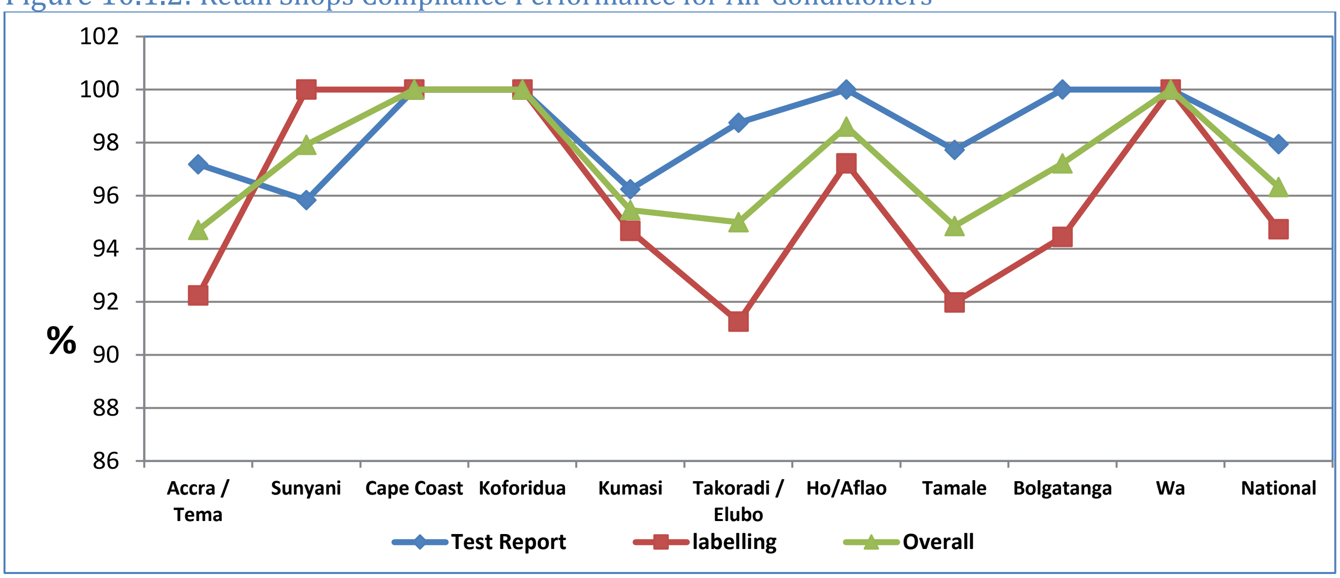


Figure 10.1.2: Retail Shops Compliance Performance for Air Conditioners

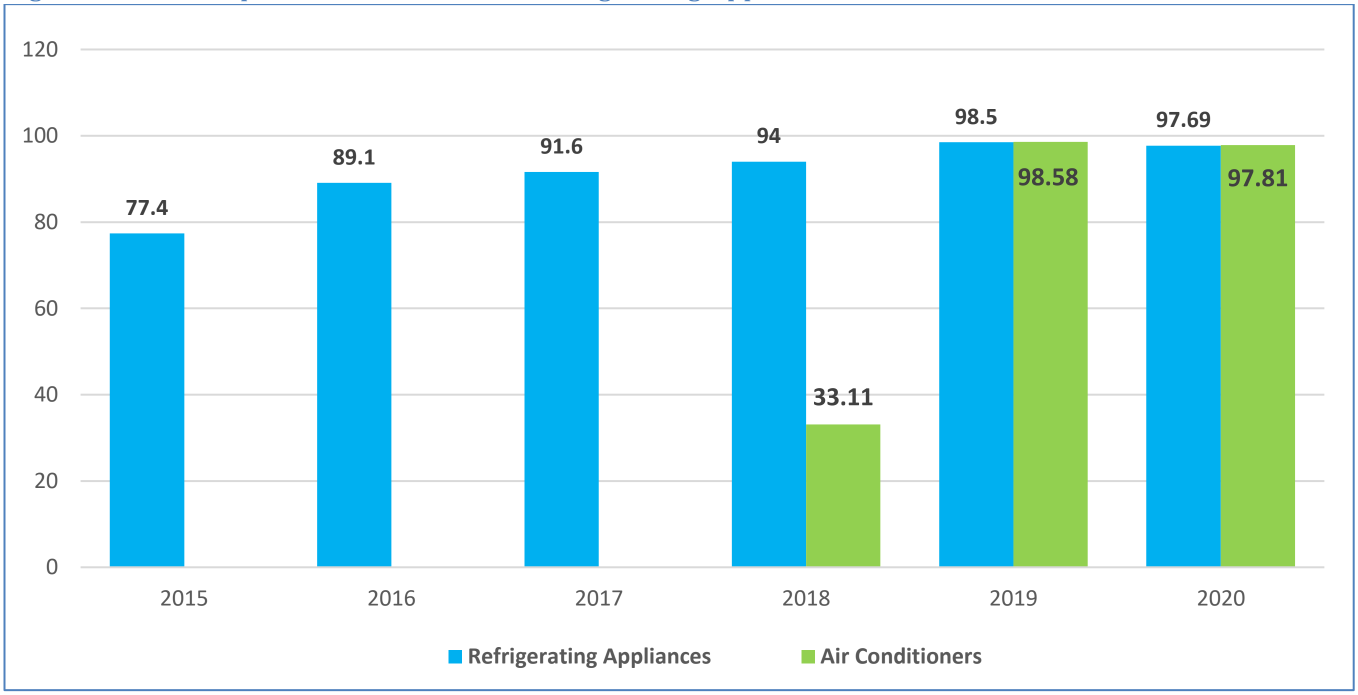


10.2 Appliance Importation Overview

Importers of regulated appliances are primarily responsible for the overall outlook of the appliance market in terms of compliance with mandatory energy performance standards of regulated appliances. Market performance measurement exercises help in establishing the compliance levels of appliance importers as well as identify smugglers of unapproved models of regulated appliances onto the appliance market. Over the years, compliance levels for appliance importers have improved significantly from 2015 to 2020. However non-compliant appliances continue to find their way onto the market. Regarding refrigerating appliances, compliance levels among appliance importers have increased from 77.4% in 2015 to above 95% in 2020. Compliance levels among importers of air conditioners also increased from 33.11% in 2018 to above 96% in 2020.

This trend influences positively the confidence level of consumers in the patronization of these regulated appliances on the market. Figure 10.2.1 show year on year trend of national compliance levels for refrigerating appliances and air conditioners from 2015 to 2020.

Figure 10.1.2: Compliance Level Trend for Refrigerating Appliances and ACs from 2015 to 2019



11.0 Conclusions and Recommendations.

11.1 Conclusions

The appliances market performance measurement exercise has provided the overall outlook of the regulated appliances' compliance to standards and labelling regime being implemented in the country. An average of 97% of both refrigerating appliances and air conditioners being sold on the market meet the energy efficiency and performance standards. Obtained data also reveal that an average of 94% of both refrigerating appliances and air conditioners are properly labelled. The compliance performance of a typical appliance retailer of both refrigerating appliances and air conditioners stands at an average of 96%. Importers of Non-Compliant appliances have been contacted to submit appropriate documentation and duly label properly the mislabelled ones as part of the enforcement actions taken so far. Investigations will be conducted to establish how about 3% of non-compliant regulated appliances found their way onto the market. The current market parameters trends of refrigerating appliances are displayed in table 11.1.1.

Table 11.1.1 Summary of Refrigerating Appliances Parameter on The Market.

Star Rating	Fridge Type	Average Volume (Litres)	Average Power Consumption (kWh/Year)	Average Price (GHS)
5 Star	Freezer Only	165.00	225.00	1,525.92
	Fridge Only	354.50	142.00	5,168.00
	Fridge+Freezer	600.00	452.50	7,271.00
4 Star	Freezer Only	231.50	272.38	1,706.17
	Fridge Only	166.67	110.74	1,122.03
	Fridge+Freezer	337.73	309.45	3,319.88
3 Star	Freezer Only	227.38	346.43	1,868.30
	Fridge Only	124.42	152.50	988.83
	Fridge+Freezer	276.50	317.77	2,634.69
2 Star	Freezer Only	298.09	343.33	1,858.33
	Fridge Only	96.00	203.07	846.94
	Fridge+Freezer	219.24	341.90	1,814.79
1 Star	Freezer Only	313.80	410.25	1,834.25
	Fridge Only	83.75	219.00	712.81
	Fridge+Freezer	192.22	384.81	1,293.79

11.2 Recommendations

It was discovered during the verification process of import data relating to regulated appliances that an excel workbook is being used for the data capture and analysis. It is being recommended that a robust web-based database is established to capture and analyze import data of regulated appliances. This will eradicate mistakes during data entry and possible data losses. This is a pressing need and hence should be acquired as soon as possible.