

**IMPORT CONVERSION FACTORS FOR THE
NATIONAL TELEVISION AND COMPUTER
RECYCLING SCHEME:**

Stage 2 Conversion Factors Exercise

*Prepared for the Department of Sustainability, Environment,
Water, Population and Communities*

September 2011

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	1
2. INTRODUCTION.....	3
3. BACKGROUND.....	4
4. OVERVIEW OF METHODOLOGY FOR DERIVING THE FACTORS	5
5. RESULTS - PROPOSED CONVERSION FACTORS FOR SC07	6
1.1. Multi function devices (MFDs)	7
1.2. Personal or desktop printers (PDPs)	14
1.3. Computer mobile units.....	19
1.4. Computer desktops and similar (A)	22
1.5. Computer desktops and similar (B)	25
1.6. Computer desktops and similar (C).....	27
1.7. Control devices	30
1.8. Storage units for computers	35
1.9. Parts and accessories of computers	41
1.10. Internal power supplies for PCs.....	47
1.11. Speakers.....	48
1.12. Web cameras.....	49
1.13. Computer displays - CRT	50
1.14. Computer displays – Non CRT	51
1.15. Black and white televisions.....	54
1.16. Colour televisions	55
6. RESULTS - PROPOSED CONVERSION FACTORS FOR SC12	70
7. DISCUSSION.....	72
7.1 Robustness of conversion factors applied individually.....	72
7.2 Robustness of conversion factors applied collectively	74
Overall impact.....	74
Impact of applying factors to each brand/importer	75
8. APPENDIX A - Methodology for deriving the Conversion Factors	78
a. Data Gathering	78
b. Data Analysis.....	80
ATTACHMENT A – DATA GATHERING TEMPLATE.....	87
ATTACHMENT B – CONVERSION FACTOR CHARTS.....	88

CLIENT DISCLAIMER: The views and opinions expressed in this publication are those of the author and do not necessarily reflect those of the Australian Government or the Parliamentary Secretary for Sustainability and Urban Water.

While reasonable efforts have been made to ensure that the contents of this publication are factually correct, the Commonwealth does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.

1. EXECUTIVE SUMMARY

The Department of Sustainability, Environment, Water, Population and Communities (the department) is seeking to develop factors to convert import quantities of televisions, computers and computer peripherals into weights to support the operation of the National Television and Computer Recycling Scheme (the Scheme). The Regulations for the Scheme rely on Customs import data to use in calculations for estimating the amount of waste generated each year and to determine the import share of television and computers importers for the purposes of allocating the targets. Imports are currently measured in units, whereas waste and recovery reporting is weight-based. The aim of this study is to develop a set of factors to convert units to weights to enable a single unit for measurement and reporting under the Scheme.

This report presents Stage 2 of a consultancy to provide recommendations, modelling and rationales for simple, robust, cost efficient, accountable and transparent conversion factors. It follows on from a feasibility study which found that although the robustness of the factors could not be determined until completion of this exercise, there was sufficient data upon which to develop a preliminary set of conversion factors.

Twelve stakeholders participated in providing data for this study, consisting of eleven brand owners and one computer accessory distributor. Conversion factors were developed for each ten-digit Harmonized Tariff Item Statistical Code (HTISC) for 2007 as well as the planned 2012 codes. Where data was not provided for a HTISC, an alternate approach was used and this generally involved applying the conversion factor for the higher-level eight-digit Customs Tariff Classification Number (CTCN). In the case of televisions, data was not provided for a number of HTISCs and conversion factors that *were* developed were applied to HTISCs of an equivalent screen size.

A number of tests were applied to evaluate the robustness of the conversion factors on an individual HTSIC level, and collectively across all HTISCs. At the individual HTSIC level, Percharde/MS2 representative sample sizes to develop the conversion factors for televisions, computers and printers were reasonable, at 47%, 32% and 33% of imports respectively. While sample sizes for peripheral HTISCs were fairly low at 2%, at a Scheme level the relatively lighter weight of these HTISCs as compared with heavier substantive products makes them of lesser significance when estimating Scheme targets and calculating import shares. Therefore it is recommended that the conversion factors for peripheral HTISCs are included in the Scheme as an appropriate proxy. At an individual level the study also found, in most cases, a moderate or high variation over time between the conversion factor year and previous years is negative, meaning that the *calculated weight imported* understates *actual weight imported*.

When considering the HTISCs collectively, an indicator of the robustness of the conversion factors is the extent to which the factors accurately calculate the total actual weight of imports in the reporting year and over time. This analysis found that when applying the factors to 2010-11 data, the conversion factors are very close to the actual weight of imports (underestimated by 9% in 2010-11, 15% in 2009-10 and 12% in 2008-09).

In 2012-13, the Scheme target will be based on imports over three years from 2009-10 to 2011-12. The conversion factors are expected to underestimate the *overall actual import weight* during 2009-10 and 2010-11 and, where the trend of declining product weights continues, the 2011-12 underestimate is expected to be smaller than the 2009-10 and 2010-11 underestimates. Accordingly, overall it is expected that the Scheme target in 2012-13 will slightly underestimate the *actual weight of imports*.

As a final analysis, actual share of all imports by weight (import share) was compared to calculated import share for all participating brands. The extent to which the conversion factors under or over state actual weight share ranges from -2.6% to 0.8%, demonstrating that the factors, when applied collectively, calculate a very reasonable estimate of actual import share.

While Perchards/MS2 advise that the conversion factors are not appropriate or intended to apply to individual HTISCs in isolation, when applied collectively across multiple HTISCs (as intended under the Scheme) they represent a reasonable and consistent proxy for actual weight and can effectively be applied to import data to determine Scheme liability. The conversion factors will need to be reviewed periodically to ensure they remain reliable, especially considering that for some products average weight is declining.

2. INTRODUCTION

The Department of Sustainability, Environment, Water, Population and Communities (the Department) commissioned Percharads and MS2 to provide recommendations, modelling and rationales for simple, robust, cost efficient, accountable and transparent conversion factors from unit to weight for the identified Australian Customs and Boarder Protection Service (Customs) tariff codes included under the National Television and Computer Recycling Scheme (the Scheme).

Two levels of tariff code are relevant to this study: the ten-digit HTISC Harmonized Tariff Item Statistical Code (HTISCs) and the eight digit Customs Tariff Classification Number (CTCN), which is the next tariff level up, or 'parent' level to the HTISCs.

The project comprises a two step process:

Step 1

1. Consider whether it is feasible and appropriate to develop (and maintain over time) robust and defensible conversion factors reflecting the weighted average weight of products contained in each identified HTISC. This includes consulting with stakeholders identified by the Department.
2. Prepare a report to the Department outlining the feasibility and any relevant issues or alternative options in the case where the finding is that the conversion to weight approach is not feasible. If a conversion factor approach is feasible, confirm the approach to be taken to Step 2.

Step 2

Where it is determined that a HTISC-based set of conversion factors is feasible:

1. Develop a statistically valid methodology to derive a conversion factor for each of the identified codes. Document the assumptions behind the methodology.
2. Undertake a confidence rating of each conversion factor to determine the quality and accuracy of each conversion factor and identify any significant issues.
3. Develop an Excel spreadsheet toolkit to allow import unit totals to be converted into weights for each of the identified codes.

Step 1 (the feasibility study) was delivered to the Department in July 2011.

This report presents Step 2 of the project.

3. BACKGROUND

A key priority of the *National Waste Policy: Less waste, More resources* is for the Australian Government to introduce national product stewardship legislation. This legislation (which passed Parliament on 22 June and commenced 8 August), together with associated regulations, will establish a product stewardship scheme for televisions, computers and computer peripherals as a priority. In this report, the television, computer and computer peripherals industry is referred to collectively as *industry*.

Under the legislation and associated regulations as currently proposed, above-threshold importers and Australian manufacturers of televisions, computers and computer peripherals will be required to be members of an approved product stewardship arrangement. Penalties will apply if this obligation is not met.

It is currently proposed that recycling targets for the scheme will be expressed as a percentage of the estimated annual waste stream. This estimated waste stream is calculated based on an average of the annual imports over the last three years, multiplied by a scaling factor of 0.9. It is proposed that the recycling targets will be allocated to product stewardship arrangements based on the import/manufacture share of members. Imports are currently measured in units, whereas waste and recovery reporting is weight-based. The aim of this study is to develop a set of factors to convert imports, within individual HTISCs, from units to weights. This will enable a single unit for measurement and reporting under the Scheme.

The feasibility study involved stakeholder consultations with brand owners and the two peak industry associations (Product Stewardship Australia and the Australian Information Industry Association) to determine the availability of information on which conversion factors could be derived. The study found that industry favoured reporting of actual weights over a units-to-weight conversion factor approach, but that industry did not have a sense of the challenge of determining market shares or enforcing compliance under that approach. The study concluded that brand owners were able to provide sufficient data from which to develop a preliminary set of conversion factors, although the robustness of the factors would not be known until this exercise was completed.

This report proposes a preliminary set of conversion factors, states the methodology for deriving them and any assumptions and proposes confidence ratings for the conversion factors. The Scheme conversion factors will need to be reviewed periodically to ensure they remain reliable, especially considering that for some products average weight is declining.

4. OVERVIEW OF METHODOLOGY FOR DERIVING THE FACTORS

The basis for the methodology for deriving the conversion factors, as set out in the feasibility study, was to develop a weighted average weight for each 2007 HTISC tariff code and draft 2012 HTISC tariff code. The weighted average represents the ‘typical weight’ for each code, calculated as the total weight of all imports divided by the number of units imported.

This approach involved gathering one years worth of real data for all products, models and items imported within each HTISC (referred to herein as *models*) including model weights and the number of units of each model imported. Participants predominantly provided data for the year 2010-11, with data sought for an alternative year where there were no imports under a HTISC in 2010-11.

It was agreed between the Department and Perchards/MS2 to seek this data from industry brand owners. While the industry brand owners do not cover all industry imports, they account for a significant proportion. Many of the participants in the study are also members of Product Stewardship Australia (PSA) and the Australian Industry Information Association (AIIA) and it was considered that they would be willing participants in the exercise, as these associations are supportive of the development of the Scheme.

In order to achieve a weighted average as representative as possible of all industry imports the exercise aimed to gather as large a data set as possible.

The methodology used for deriving the conversion factors follows the approach laid out in the feasibility study and is detailed in Appendix A. In summary the methodology for deriving the conversion factors involved three stages:

- Data gathering;
- Data analysis; and
- Deriving and making recommendations on the conversion factors.

The following results section presents an evaluation from which to develop a conversion factor for each HTISC. The evaluation includes for each HTISC:

- A bar chart of the frequency distribution of the data
- Maximum and minimum value of the range
- Standard deviation
- Mean
- Median
- Two measures of confidence (see Appendix A for more details)
- A measure of validity of the conversion factor over time, expressed as variation over time

Note that variation over time is determined by the percentage of *actual weight imported* that is over or understated by *calculated weight imported* (by the conversion factors). Where this percentage stays at 0% there is no variation over time. A value of $\pm 0-10\%$ is assigned a low variation over time, a value of $\pm 10-20\%$ is assigned a moderate variation over time, and anything beyond $\pm 20\%$ is assigned high variation. Where data is supplied for only one year then the variation over time is not known.

5. RESULTS - PROPOSED CONVERSION FACTORS FOR SC07

This chapter presents the evaluation for each conversion factor for the 2007 HTISCs grouped according to CTCNs. Where the CTCN contains more than one HTISC, each section commences with a pie chart to give an indication of the proportion of individual HTISCs within the CTCN. Following this are the statistics and analyses for each HTISC. These include a brief commentary about the weight distribution (which can be observed in graphical form in the charts provided showing the distribution of units imported in the conversion factor year), followed by the proposed conversion factor.

Selection of the measure of average and confidence intervals are made on a case by case basis depending on the nature of the weight distribution. In all cases the weighted mean is used as a measure of average. In most cases the proposed confidence intervals are calculated by the *Use of percentiles* method, as opposed to being calculated by the *Approximation to the normal distribution* method which was often considered to yield results that did not fit the data set or allow for the variation of the distribution. Confidence intervals based on the *Approximation to the normal distribution* are denoted by the '±' sign, i.e., the average plus or minus the confidence value. The *Use of percentiles* method does not produce symmetrical confidence values and is therefore denoted as a range using the symbols '<' and '>'.

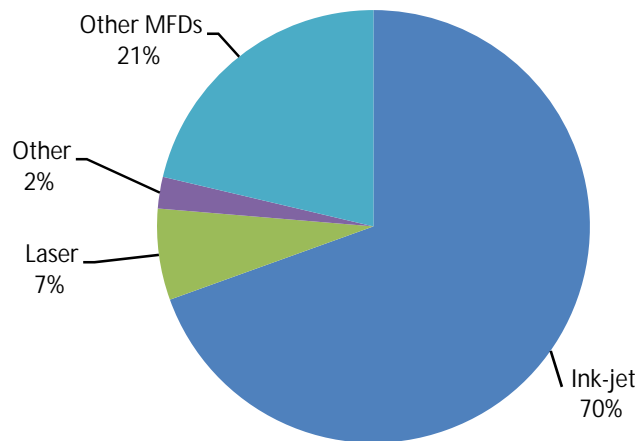
Where conversion factors could not be developed for certain HTISCs due to lack of data, it is generally recommended that conversion factor developed at CTCN level be applied. In such cases the data gaps are indicated and an evaluation presented for the CTCN.

1.1. Multi function devices (MFDs)

Summary of ABS Imports

According to ABS import data, 2,093,022 units of multi function devices (MFDs) were imported in 2011. The proportions are shown in Figure 5-1. The dominant HTISC in this CTCN is Ink-jet MFDs.

Figure 5-1 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8443.31.00 61 - MFDs: Ink-jet

Figure 5-2 HTISC frequency distribution in CF year

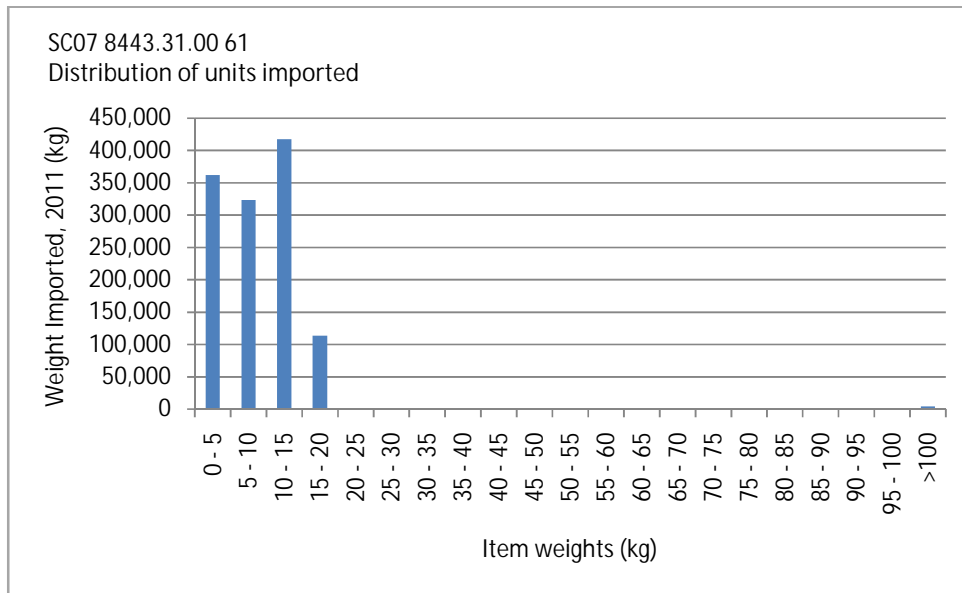


Table 5-1 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,454,465	84%	3.6	250.2	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	8.7	8.2	9.1	0.4
Use of percentiles	Median	11.1	3.6	16.2	7.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-34%	10%

Distribution: Imports are heavily clustered within the 0-15 kg weight range, with a few outliers at greater than 100 kg. Most imports are likely to be within or close to the proposed confidence interval.

Proposed conversion factor: 8.7 kg

Proposed confidence interval: > 3.6 kg, < 16.2 kg

Variation over time: High

SC07 8443.31.00 64 - MFDs: Laser

Figure 5-3a HTISC frequency distribution in CF year – original data set

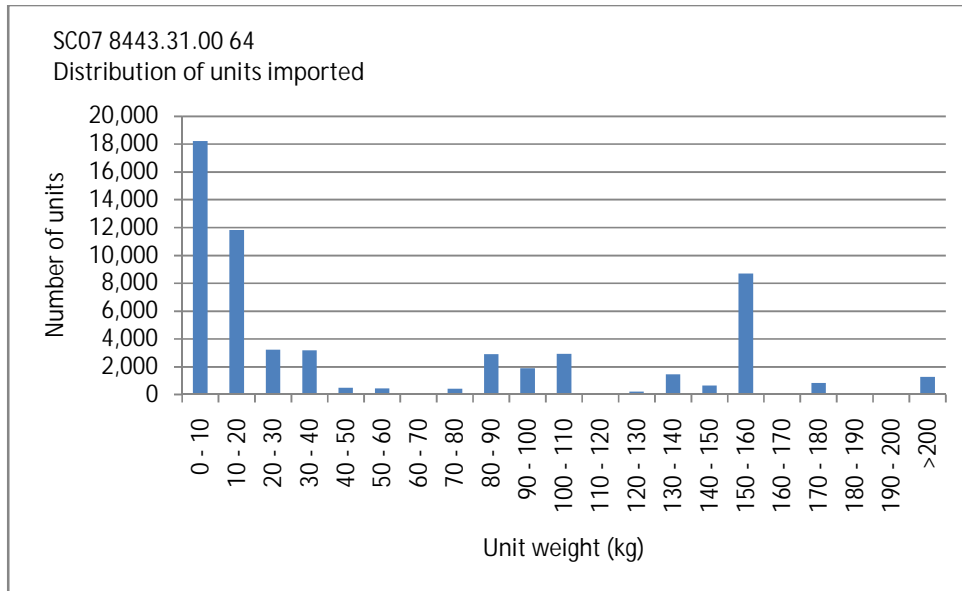


Table 5-2a Conversion factor statistics - original data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	142,982	41%	6.7	342.0	1.7

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	58.0	54.7	61.4	3.3
Use of percentiles	Median	150.9	6.5	304.0	153.1

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-52%	-65%

Figure 5-3b HTISC frequency distribution in CF year – revised data set

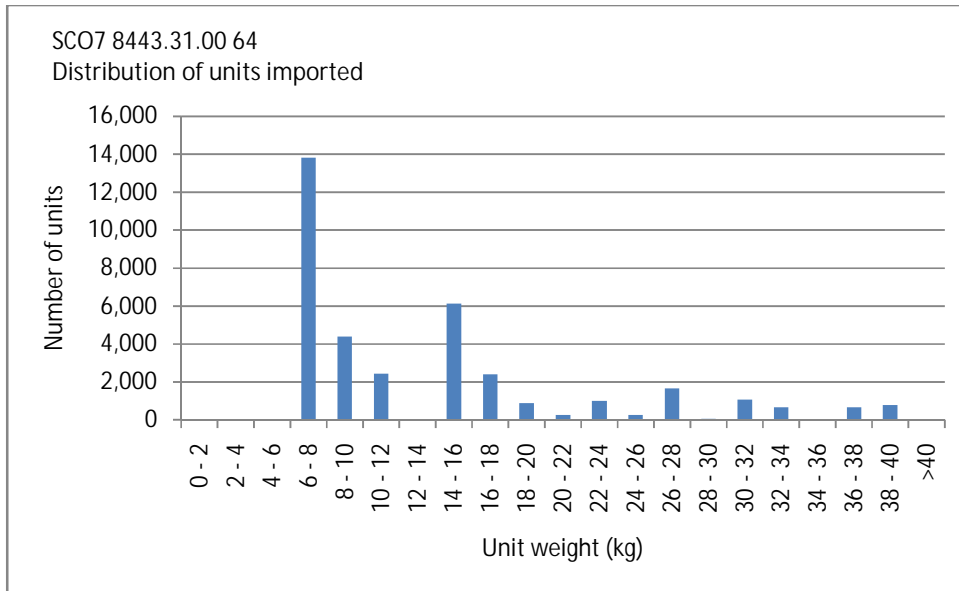


Table 5-2b Conversion factor statistics – revised data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	142,982	25%	6.7	38.8	0.4

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	13.6	12.7	14.5	0.9
Use of percentiles	Median	26.3	7.0	36.8	19.3

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-42%	32%

Figure 5-3a and Table 5-2a present the original data set for this HTISC which showed a high degree of variation across all weight groups, with a cluster between 0 and 20 kg, another cluster between 150-160 kg and a maximum of 342 kg. It was agreed with the Department to exclude from the conversion factor models weighing in excess of 40 kg (Figure 5-3b and Table 5-2b).

Revised distribution: High degree of variation across all new weight groups. Most imports fall within the 6-8 kg group with a second cluster at 14-16 kg. The effect of the variation in this HTISC is likely to be diluted at CTCN level due to the CTCN being dominated by Ink-jet devices.

Proposed conversion factor: 13.6 kg.

Proposed confidence interval: > 7 kg, < 36.8 kg

Variation over time: High

SC07 8443.31.00 90 - MFDs: Other MFDs

Figure 5-4a HTISC frequency distribution in CF year- original

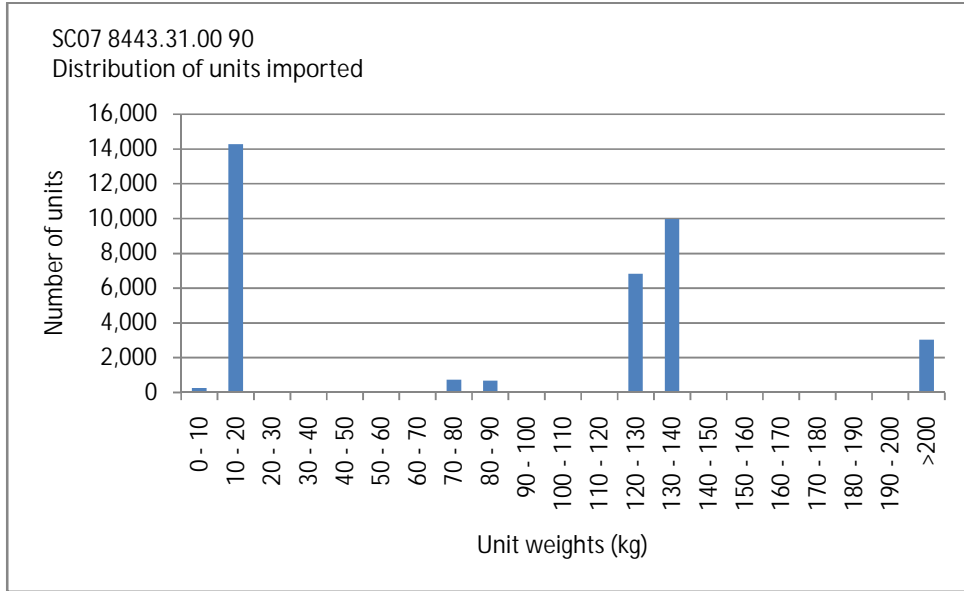


Table 5-3a Conversion factor statistics –original data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	446,228	9%	4	551.0	3.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	84.5	78.5	90.5	6.0
Use of percentiles	Median	132.1	9.9	278.8	146.7

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-38%	-82%

Figure 5-4b HTISC frequency distribution in CF year- revised data set

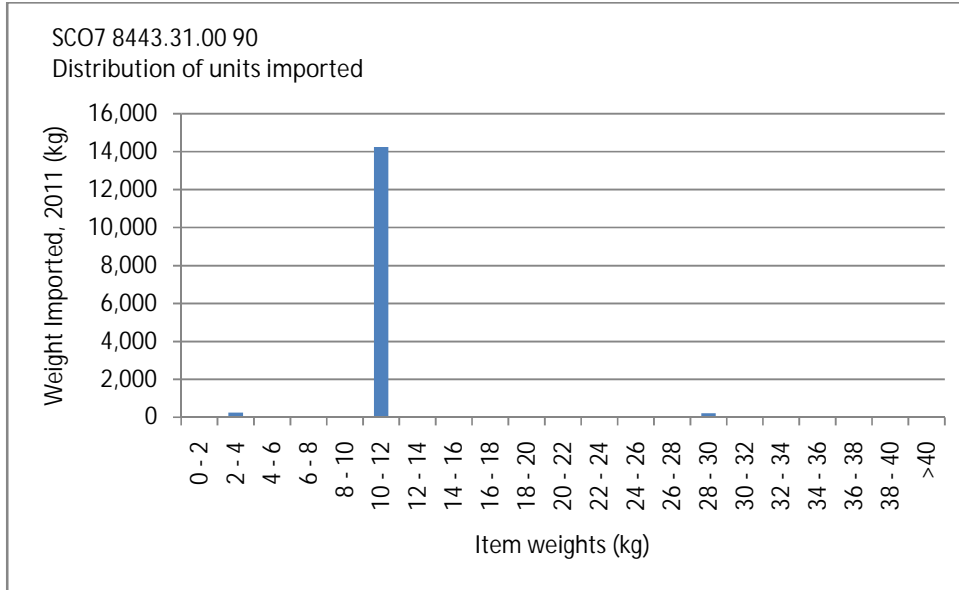


Table 5-3b Conversion factor statistics – original data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	446,228	1%	4	30.0	2.5

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	10.6	5.7	15.6	5.0
Use of percentiles	Median	20.6	11.0	30.3	9.6

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	13%	49%

Figure 5-4a and Table 5-3a present the original data set for this HTISC which showed high weight variation, with the largest cluster at 10-20 kg, another at 120-130 kg, a small group greater than 200 kg and a maximum of 551 kg. It was agreed with the Department to exclude from the conversion factor models weighing in excess of 40 kg (Tables 5-4b and Table 5-3b).

Revised distribution: The vast majority of models in this code fall within the new, narrower weight group of 10-12 kg.

Proposed conversion factor: 10.6 kg.

Proposed confidence interval: ± 5.0 kg

Variation over time: High

Data Gaps

No imports reported for:

- 8443.31.00 62 - MFDs: Dot matrix
- 8443.31.00 69 - MFDs: Other

Recommendation: Assign conversion factors for these codes at CTCN level

CTCN 8443.31.00 - Multi-function devices (MFDs)

Figure 5-5 CTCN frequency distribution in CF year

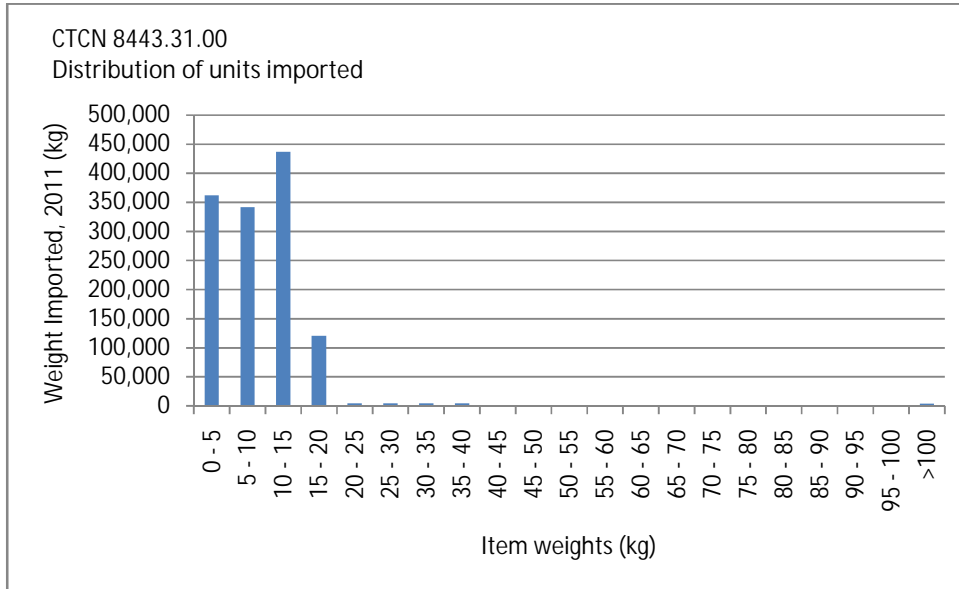


Table 5-4 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	2,093,022	61%	3.6	250.2	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	8.8	8.5	9.1	0.3
Use of percentiles	Median	11.3	3.6	16.2	7.7

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-35%	-2%

Distribution: Equivalent to the distribution of the dominant HTISC in the group; the majority of all units being between 0-15 kg. There are a few outliers between 20 - 40 kg and greater than 100 kg.

Proposed conversion factor: 8.8 kg.

Proposed confidence interval: > 3.6 kg, < 16.2 kg

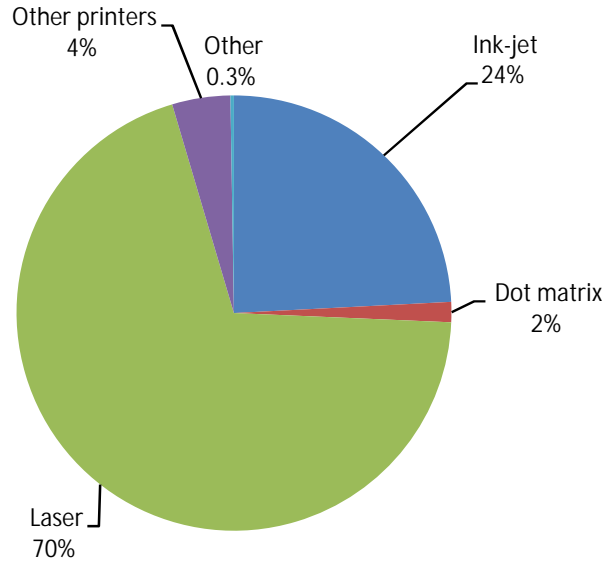
Variation over time: High

1.2. Personal or desktop printers (PDPs)

Summary of ABS Imports

According to ABS import data, 660,755 units of personal or desktop printers (PDPs) were imported in 2011. The proportions are shown in Figure 5-6. The dominant HTISC in this CTCN is Laser PDPs.

Figure 5-6 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8443.32.00 71 - PDPs: Ink-jet

Figure 5-7 HTISC frequency distribution in CF year

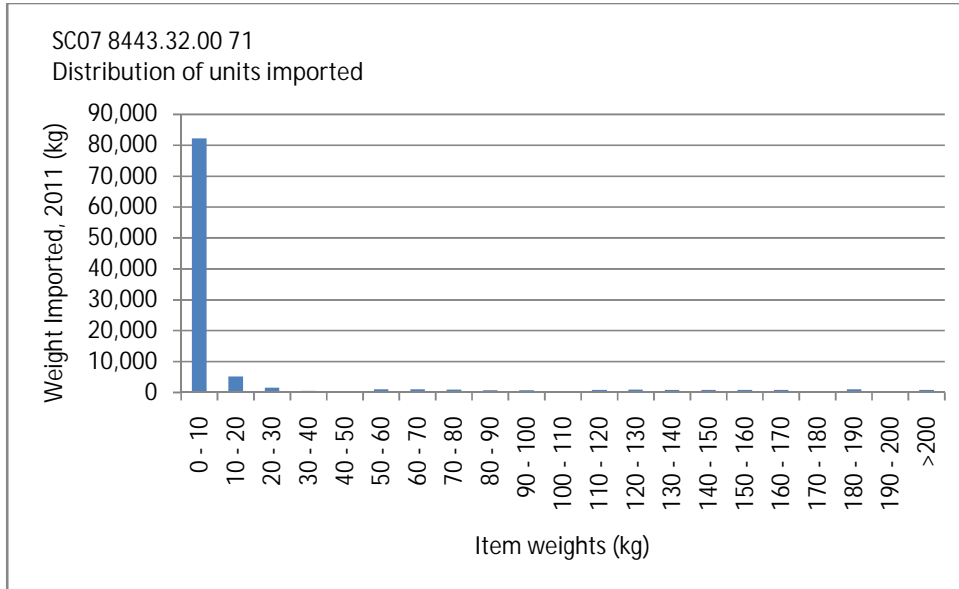


Table 5-5 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	159,856	57%	1.22	285	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	8.3	8.0	8.6	0.3
Use of percentiles	Median	8.5	2.0	232.9	224.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-40%	-14%

Distribution: Moderate degree of variation across weight groups, vast majority between 0-10 kg and approximately 1 unit representing each 10 kg weight group up to and including the > 200 kg group. An outlier at 2,700 tonnes (1 unit imported) has been excluded despite having an insignificant effect on the weighted average mean.

Proposed conversion factor: 8.3 kg.

Proposed confidence interval: > 2 kg, < 232.9 kg to represent variation

Variation over time: High

SC07 8443.32.00 72 - PDPs: Dot matrix

Figure 5-8 HTISC frequency distribution in CF year

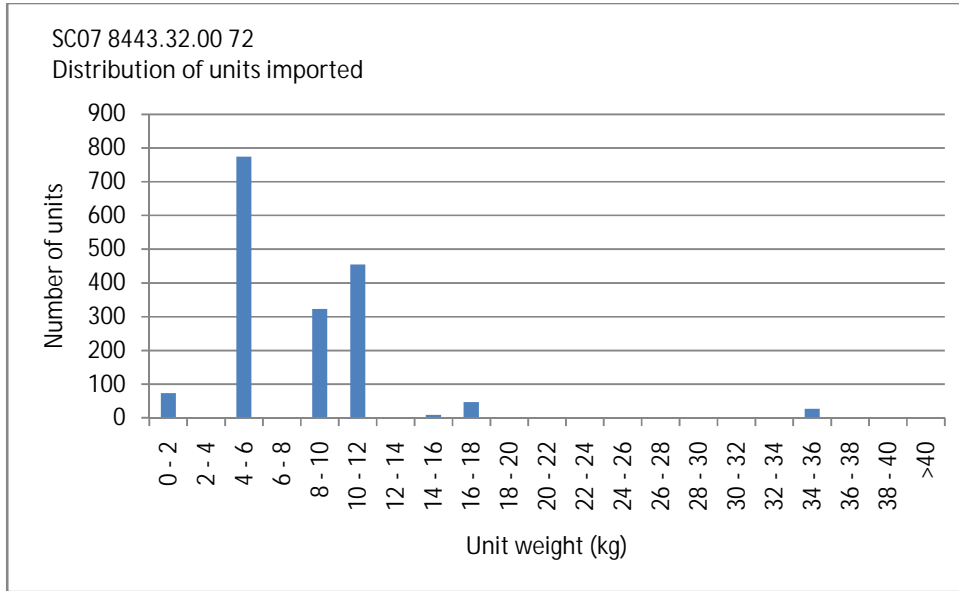


Table 5-6 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	9,922	17%	2	35.0	0.6

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	8.3	7.2	9.5	1.1
Use of percentiles	Median	9.2	2.2	31.6	22.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	16%	25%

Distribution: Narrow distribution compared to other PDPs, with the main cluster between 4 - 12 kg. Only one brand reported against this code.

Proposed conversion factor: 8.3 kg.

Proposed confidence interval: > 2.2 kg, < 31.6 kg

Variation over time: High

SC07 8443.32.00 74 - PDPs: Laser

Figure 5-9 HTISC frequency distribution in CF year

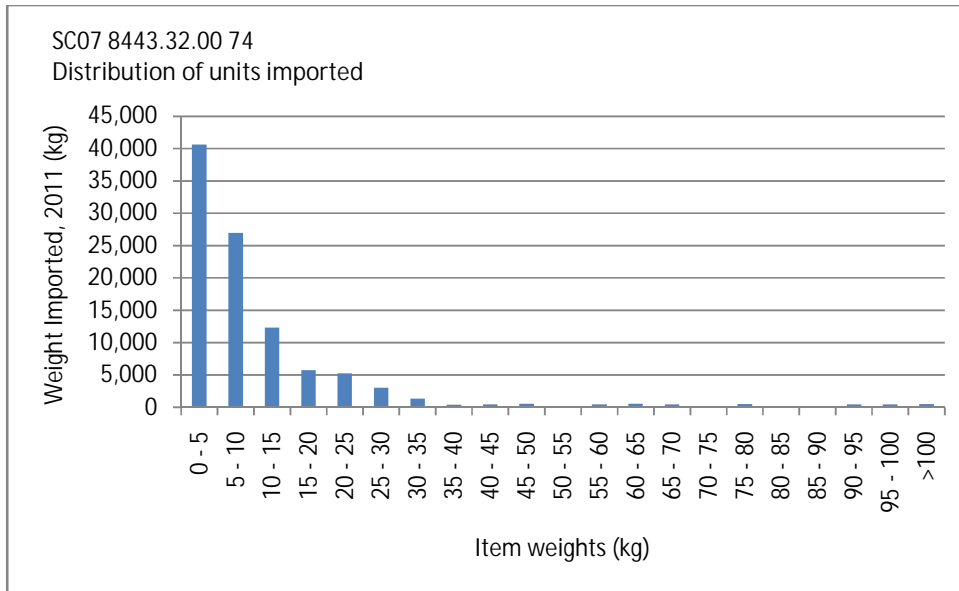


Table 5-7 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	460,659	21%	4.9	145.0	0.3

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	9.5	8.9	10.0	0.6
Use of percentiles	Median	10.9	0.6	60.8	49.9

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	100%	-60%	3%

Distribution: Low weight variation, with the majority of units between 0-10 kg.

Proposed conversion factor: 9.5 kg.

Proposed confidence interval: > 0.6 kg, < 60.8 kg

Variation over time: High

Data Gaps and Exclusions

No imports reported for: SC07 8443.32.00 95- PDPs: Other

With only 0.1% of imports represented and a mean of 0.9 kg compared to 8.3-9.5kg in the other PDP HTISCs it was concluded that there was not sufficient data on which deduce this mean as being representative of the weighted mean weight of this HTISC. In agreement with the Department, ' SC07 8443.32.00 79 - PDPs: Other printers' has been excluded.

Recommendation: Assign conversion factors for these codes at the CTCN level.

CTCN 8443.32.00 - Personal or desktop printers

Figure 5-10 CTCN frequency distribution in CF year

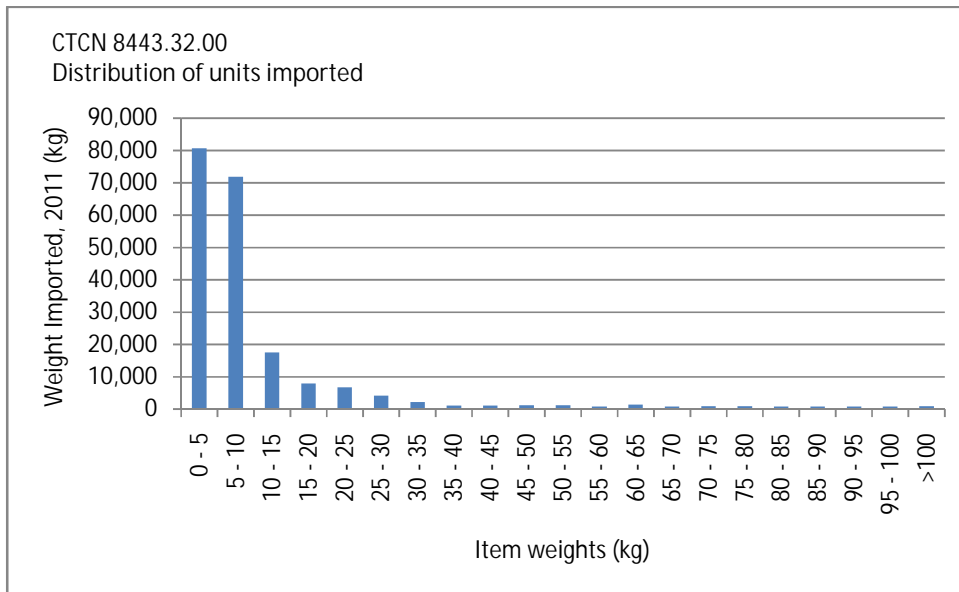


Table 5-8 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	660,755	29%	1.0	285.0	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	8.9	8.7	9.1	0.2
Use of percentiles	Median	10.6	2.0	190.0	179.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	100%	-35%	-2%

Distribution: Low weight variation, with the vast majority between 0-10 kg, tailing off to approximately 1 unit representing each 10 kg weight group up to and including the > 200 kg group.

Proposed conversion factor: 8.9 kg.

Proposed confidence interval: > 2 kg, < 190 kg

Variation over time: High

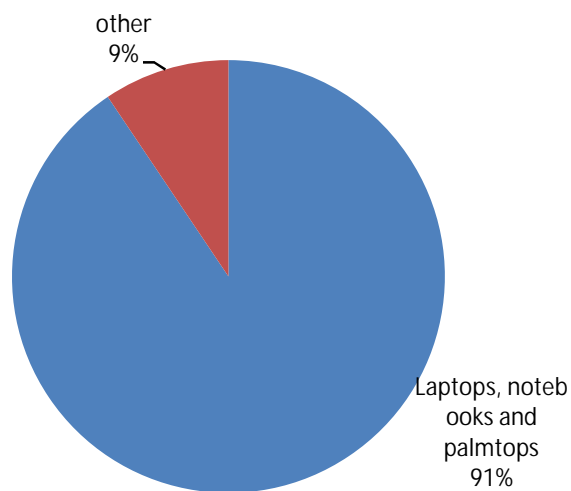
1.3. Computer mobile units

Summary of ABS Imports

According to ABS import data, 4,436,026 units of computer mobile units were imported in 2011. The proportions are shown in Figure 5-11. The dominant HTISC in this CTCN is Laptops, notebooks and palmtops.

Note that for Computer mobile units: other, no imports were recorded by participating brand owners for 2010-11 or 2009-10. Therefore the conversion factor for this HTISC is based on 2008-09 data.

Figure 5-11 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.30.00 20 - Computer mobile units: Laptops, notebooks and palmtops

Figure 5-12 HTISC frequency distribution in CF year

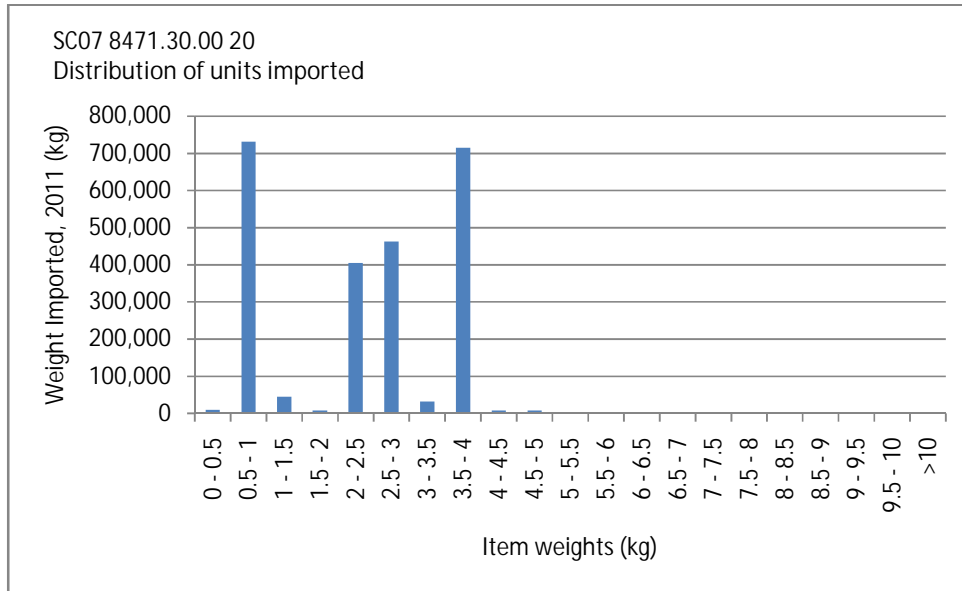


Table 5-9 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	4,436,026	54%	0.1	4.5	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	2.4	2.3	2.5	0.1
Use of percentiles	Median	3.0	0.6	3.9	2.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-22%	-29%

Distribution: Comparatively narrower distribution to MDFs and PDPs. All units between 0.5 and 4 kg. Relatively high variation within this narrow distribution.

Proposed conversion factor: 2.4 kg.

Proposed confidence interval: > 0.6 kg, < 3.9 kg

Variation over time: High

SC07 8471.30.00 90 - Computer mobile units: other

Figure 5-13 HTISC frequency distribution in CF year

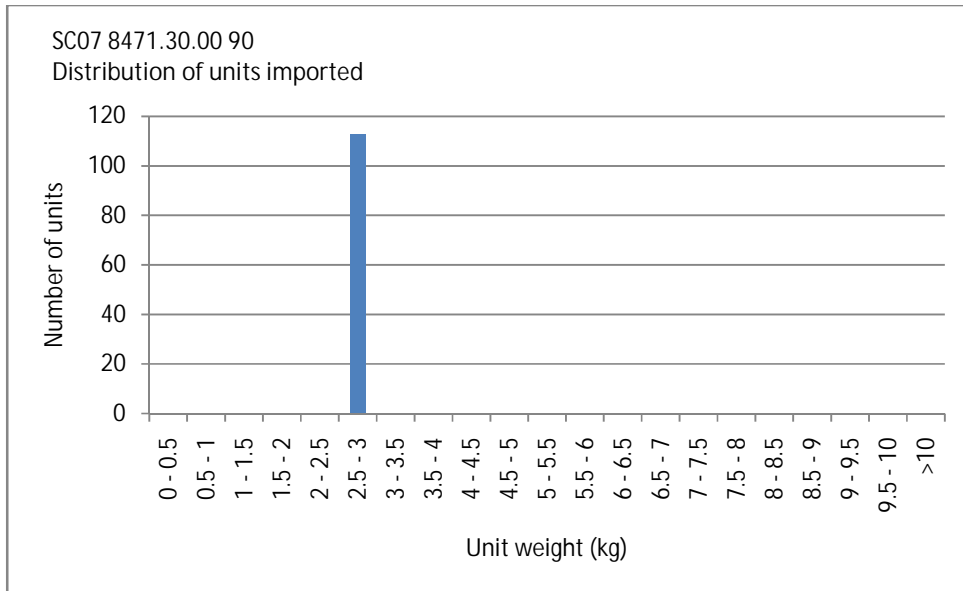


Table 5-10 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2008-09	99,298	0.1%	3.0	3.0	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	3.0	3.0	3.0	0.0
Use of percentiles	Median	3.0	3.0	3.0	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports			0%

Distribution: One brand reporting one model

Proposed conversion factor: 3 kg.

Proposed confidence interval: \pm 0 kg

Variation over time: Unknown

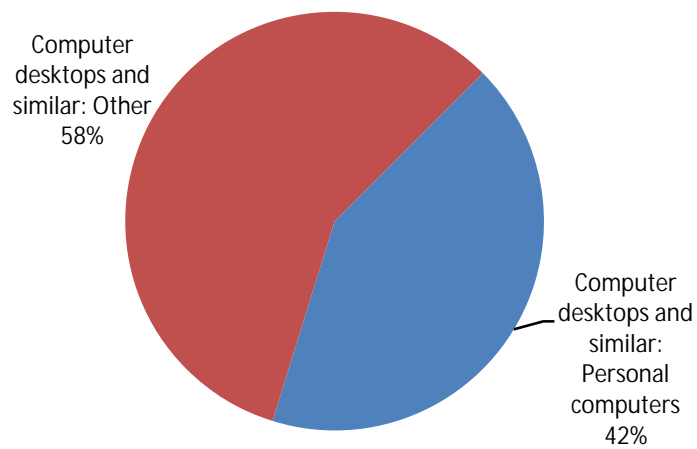
1.4. Computer desktops and similar (A)

Summary of ABS Imports

Comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined.

According to ABS import data, 256,203 units of Computer desktops and similar were imported in 2011. The proportions are shown in Figure 5-14. The dominant HTISC in this CTCN is *Computer desktops and similar: Other*.

Figure 5-14 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.41.00 21 - Computer desktops and similar: Personal computers

Figure 5-15 HTISC frequency distribution in CF year

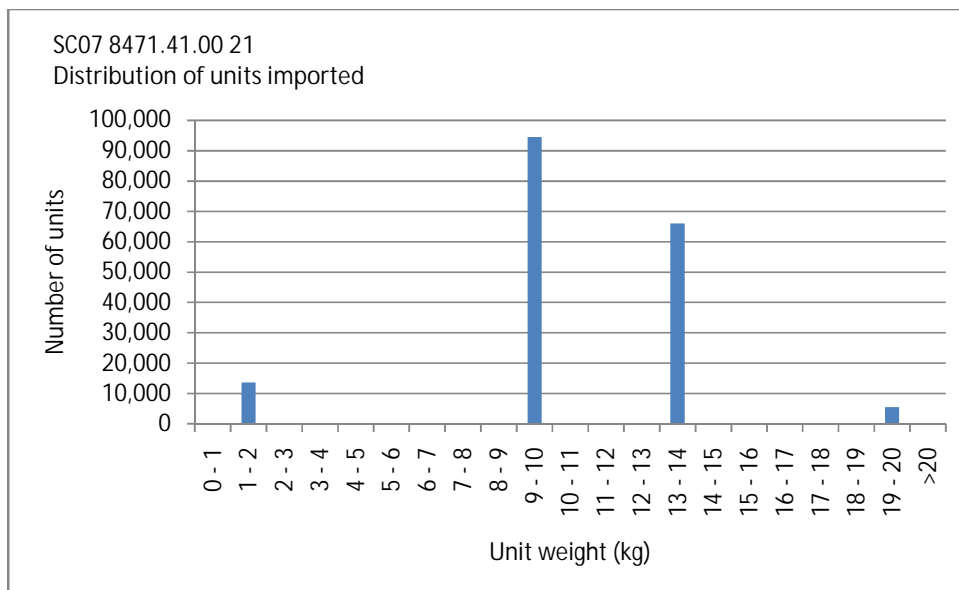


Table 5-11 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	108,371	166%	1.3	19.3	1.8

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	10.7	7.1	14.3	3.6
Use of percentiles	Median	13.8	9.1	17.7	4.7

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	3%	7%

Distribution: Relatively narrow distribution. Two distinct clusters: 9-10 kg and 13-14 kg.

Proposed conversion factor: 10.7 kg.

Proposed confidence interval: > 9.1 kg, < 17.7 kg

Variation over time: Low

SC07 8471.41.00 91 - Computer desktops and similar: Other

Figure 5-16 HTISC frequency distribution in CF year

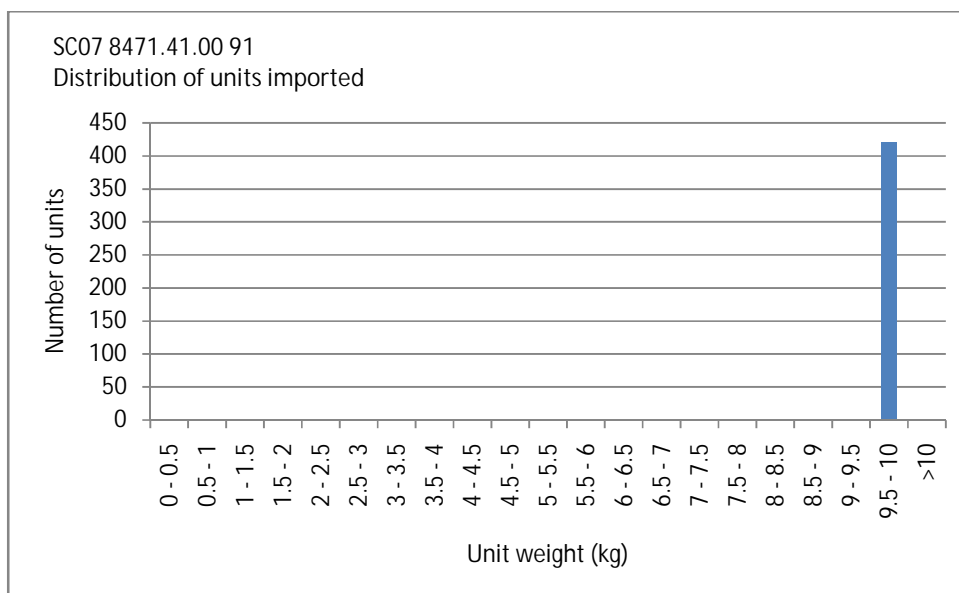


Table 5-12 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	147,832	0.3%	10	10.0	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	10.0	0.0	0.0	0.0
Use of percentiles	Median	10.0	10.0	10.0	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	0%

Distribution: One brand reporting one model.

Proposed conversion factor: 10 kg.

Proposed confidence interval: \pm 0 kg

Variation over time: None

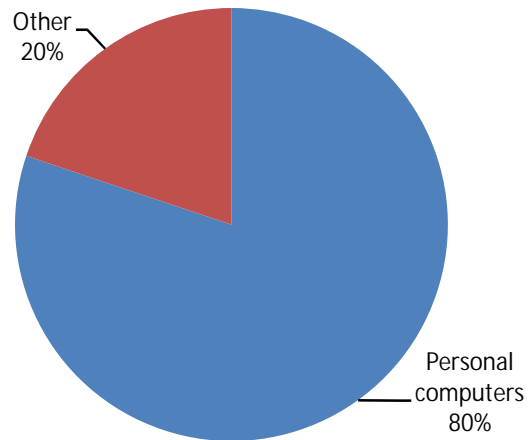
1.5. Computer desktops and similar (B)

Summary of ABS Imports

According to ABS import data, 987,981 units of Computer desktops and similar were imported in 2011. The proportions are shown in Figure 5-17.

In this CTCN the only HTISC for which data was provided is *Personal computers*.

Figure 5-17 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.49.00 22 - Computer desktops and similar: Personal computers

Figure 5-18 HTISC frequency distribution in CF year

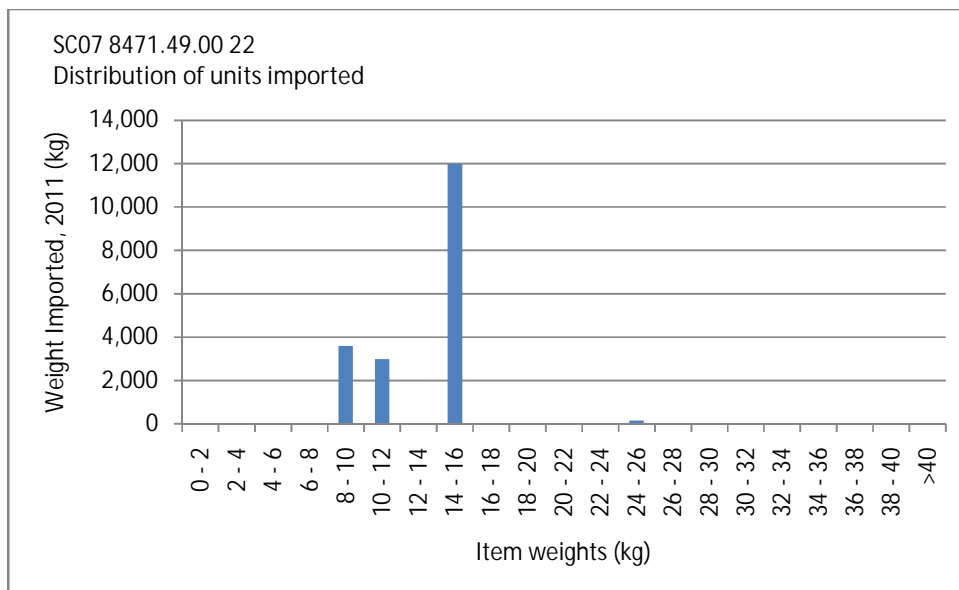


Table 5-13 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	791,883	2%	9.4	26.0	0.8

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	13.5	12.0	15.1	1.5
Use of percentiles	Median	14.7	1.8	15.9	12.9

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-100%	38%

Distribution: Relatively narrow distribution. Main cluster between 14-16 kg

Proposed conversion factor: 13.5 kg.

Proposed confidence interval: > 1.8 kg, < 15.9 kg

Variation over time: High

Data Gaps

No imports reported for:

- SC07 8471.49.00 92 - Computer desktops and similar: Other

Recommendation: Assign conversion factors for SC07 8471.49.00 22 for this code. With data for only one HTISC code in this CTCN, the CTCN factor is identical to that of SC07 8471.49.00 22.

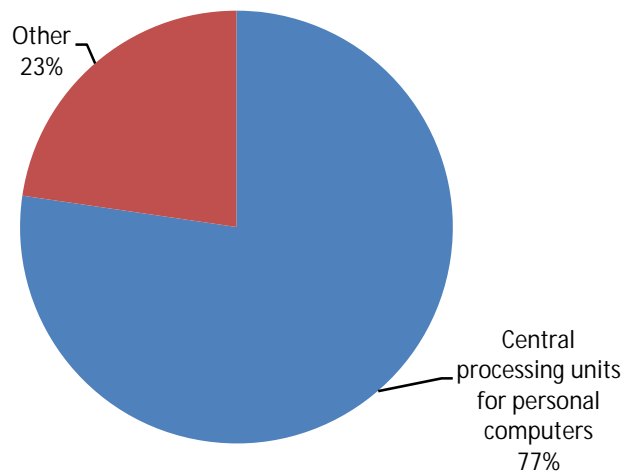
1.6. Computer desktops and similar (C)

Summary of ABS Imports

According to ABS import data, 369,023 units of Computer desktops and similar were imported in 2011. The proportions are shown in Figure 5-19.

The dominant HTISC in this CTCN is *Central processing units for personal computers*.

Figure 5-19 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.50.00 23 - Computer desktops and similar: Central processing units for personal computers

Figure 5-20 HTISC frequency distribution in CF year

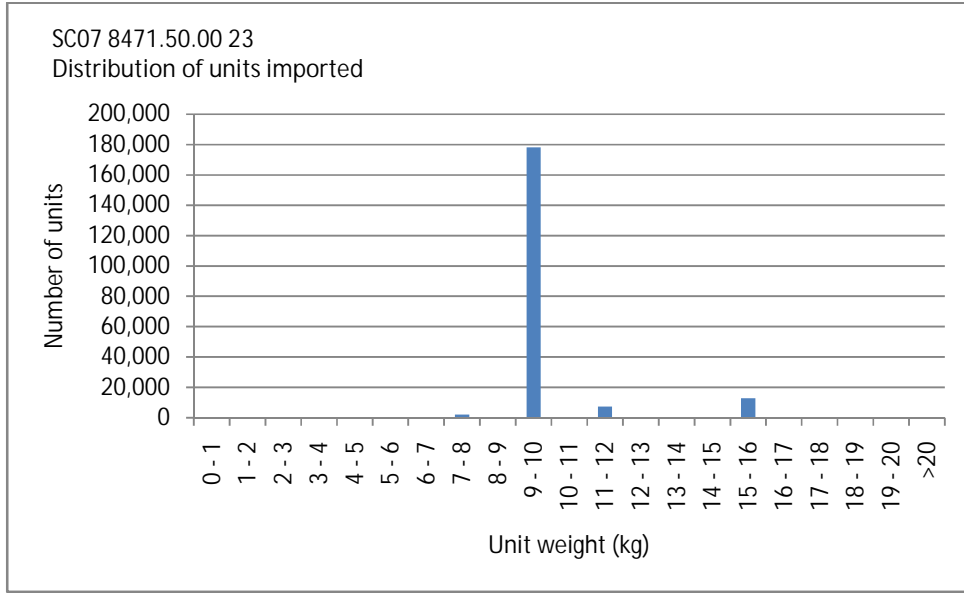


Table 5-14 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	285,333	70%	0.01	15.9	1.4

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	10.4	7.6	13.2	2.8
Use of percentiles	Median	9.8	9.5	15.9	6.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	4%	4%

Distribution: Majority of imports between 9 – 10 kg.

Proposed conversion factor: 10.4 kg.

Proposed confidence interval: > 9.5 kg, < 15.9 kg to represent variation

Variation over time: Low

SC07 8471.50.00 93 - Computer desktops and similar: Other

Figure 5-21 HTISC frequency distribution in CF year

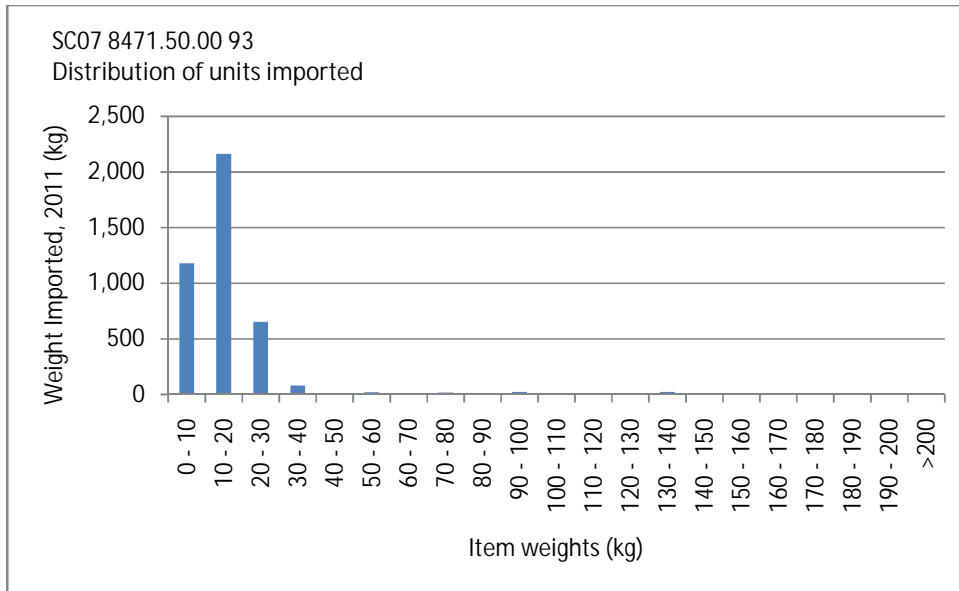


Table 5-15 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	83,690	5%	0.7	136.0	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	13.2	12.8	13.6	0.4
Use of percentiles	Median	15.7	6.0	54.5	38.8

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-100%	39%

Distribution: Wide distribution with majority between 0 - 30 kg
Proposed conversion factor: 13.2 kg.
Proposed confidence interval: > 6.0 kg, < 54.5 kg to represent variation
Variation over time: High

1.7. Control devices

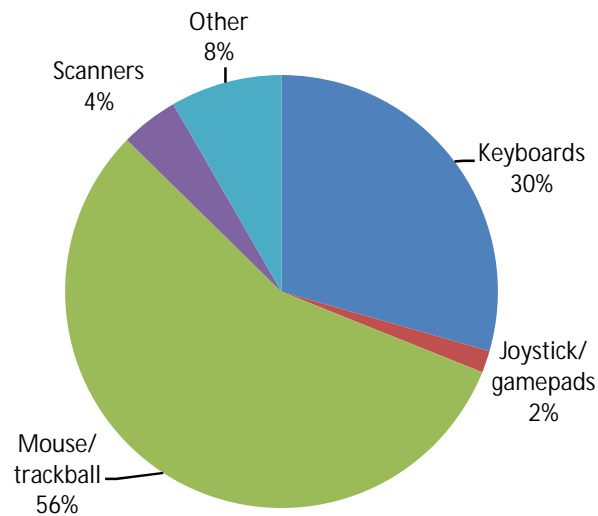
Summary of ABS Imports

According to ABS import data, 6,167,931 units of control devices were imported in 2010-11. The proportions are shown in Figure 5-22.

The dominant HTISC in this CTCN is *Mouse/trackball*, followed by *keyboards*.

Note that several brands indicated that these peripheral devices were imported but could not provide weight data.

Figure 5-22 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.60.00 55 - Keyboards

Figure 5-23 HTISC frequency distribution in CF year

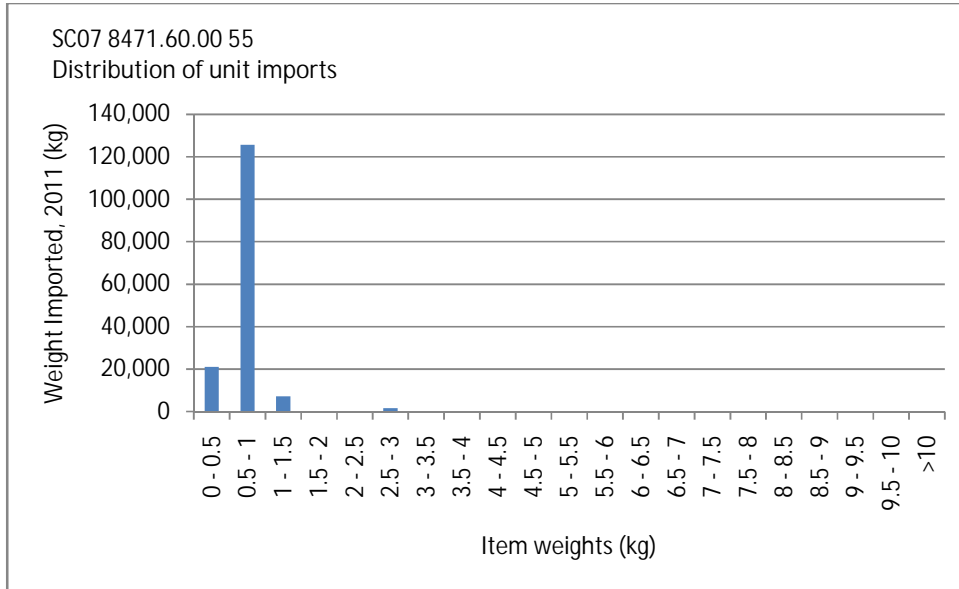


Table 5-16 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,816,342	8%	0.03	2.7	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	0.8	0.6	1.1	0.3
Use of percentiles	Median	0.9	0.9	1.5	0.6

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	2%	3%

Distribution: Narrow distribution with majority between 0.5 - 1 kg

Proposed conversion factor: 0.8 kg.

Proposed confidence interval: ± 0.3 kg

Variation over time: Low

SC07 8471.60.00 92 - Mouse/trackball

Figure 5-24 HTISC frequency distribution in CF year

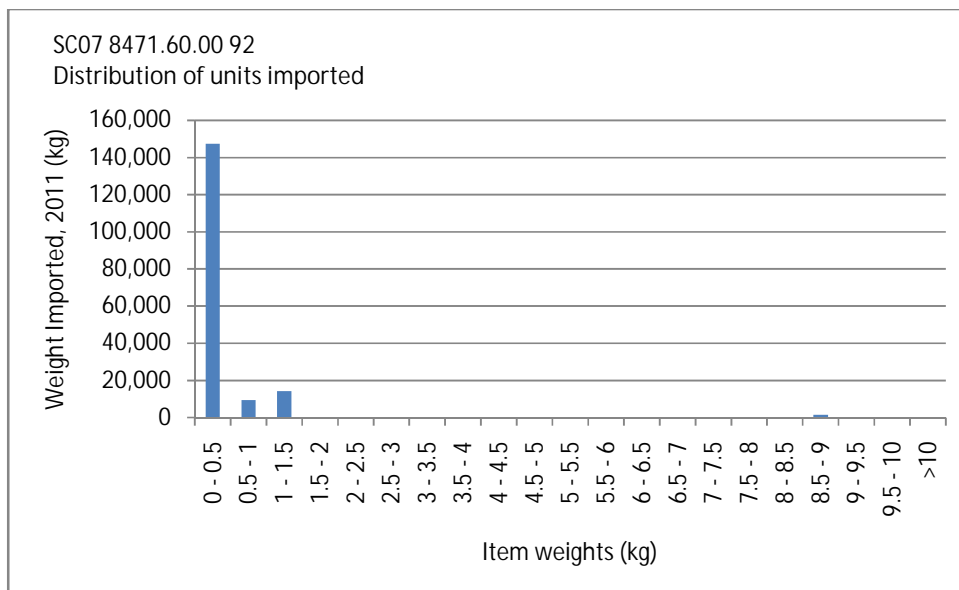


Table 5-17 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	3,470,082	5%	0.05	8.9	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.3	0.3	0.4	0.0
Use of percentiles	Median	0.5	0.1	1.0	0.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	36%	55%

Distribution: Narrow distribution with majority between 0 – 1.5 kg

Proposed conversion factor: 0.3 kg.

Proposed confidence interval: > 0.1 kg, <1.0 kg to represent variation

Variation over time: High

SC07 8471.60.00 95 - Scanners

Figure 5-25 HTISC frequency distribution in CF year

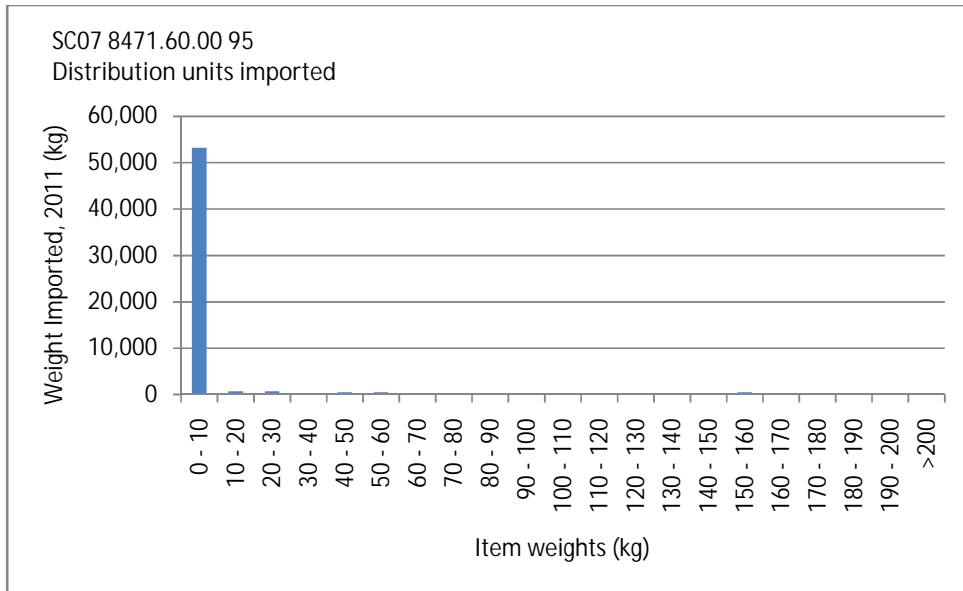


Table 5-18 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	266,499	20%	0.8	151.8	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	3.5	3.2	3.7	0.2
Use of percentiles	Median	3.8	1.8	25.7	21.9

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-17%	-21%

Distribution: All imports between 0-10 kg

Proposed conversion factor: 3.5 kg.

Proposed confidence interval: > 1.8 kg, <25.7 kg to represent variation

Variation over time: High

SC07 8471.60.00 98 – other

Figure 5-26 HTISC frequency distribution in CF year

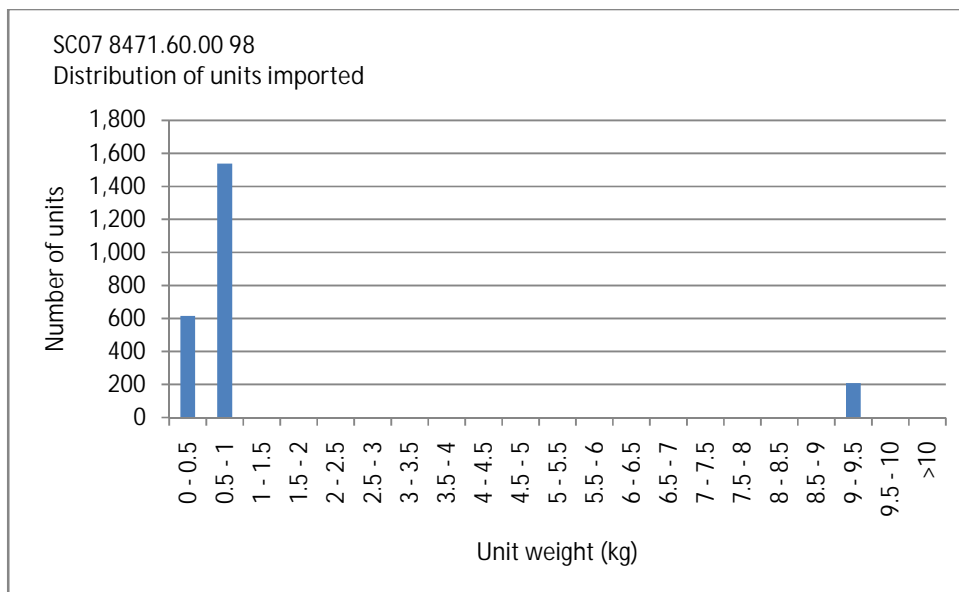


Table 5-19 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	514,526	1%	0.1	9.5	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.6	0.4	0.8	0.2
Use of percentiles	Median	1.5	0.3	9.1	7.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	221%	12%

Distribution: All imports between 0-10 kg

Proposed conversion factor: 0.6 kg.

Proposed confidence interval: > 0.3 kg, <9.1 kg to represent variation

Variation over time: High

Data Gaps

No imports reported for:

- SC07 8471.60.00 91- Joystick/game pads

Recommendation: apply conversion factor for SC07 8471.60.00 98 – *other*. The conversion factor at CTCN level is considered to be too heavy for this code due to including heavier items such as scanners and keyboards.

1.8. Storage units for computers

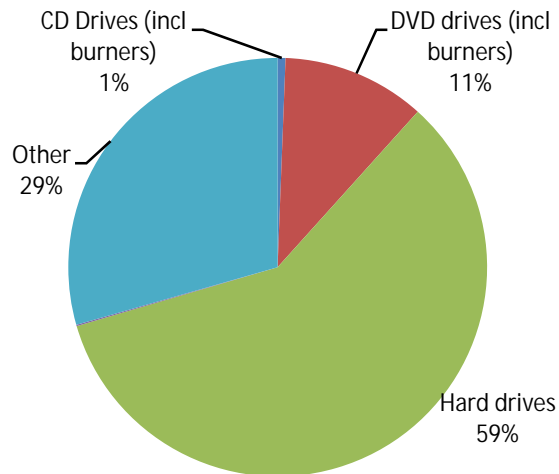
Summary of ABS Imports

According to ABS import data, 10,764,459 units of storage units for computers were imported in 2010-11. The proportions are shown in Figure 5-27. The dominant HTISC in this CTCN is *hard drives*.

Note that several brands indicated that these peripheral devices were imported but could not provide weight data.

There were no imports reported by participating brands in 2010-11 for *floppy drives*; the conversion factor year for *floppy drives* is 2008-2009.

Figure 5-27 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8471.70.00 20 - CD Drives (incl burners)

Figure 5-28 HTISC frequency distribution in CF year

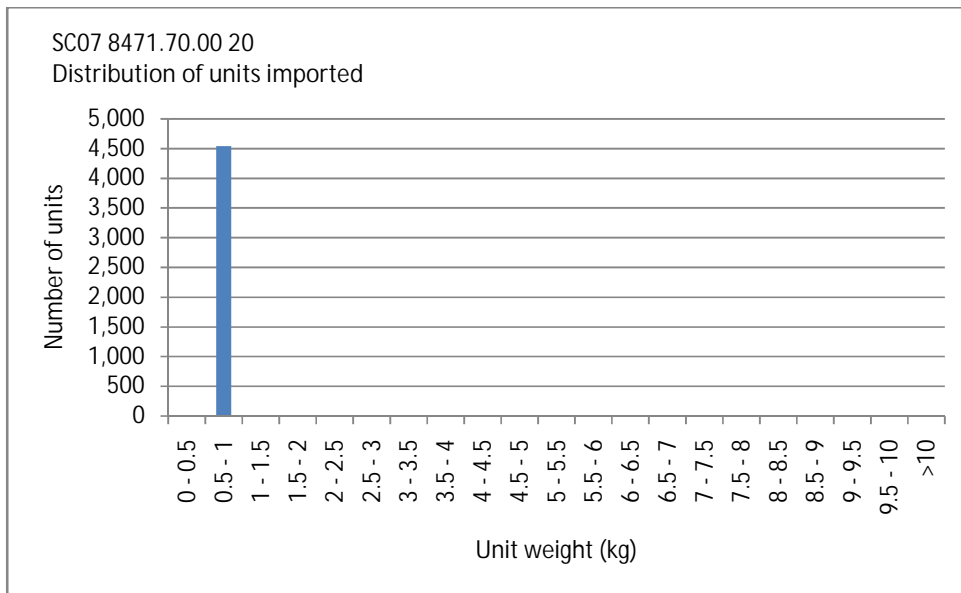


Table 5-20 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	66,961	7%	0.3	1.0	0.7

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	1.0	-0.4	2.4	1.4
Use of percentiles	Median	0.6	0.3	1.0	0.3

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	2%

Distribution: All imports between 0-1.0 kg

Proposed conversion factor: 1.0 kg.

Proposed confidence interval: > 0.3 kg, < 1.0 kg

Variation over time: Low

SC07 8471.70.00 25 - DVD drives (incl burners)

Figure 5-29 HTISC frequency distribution in CF year

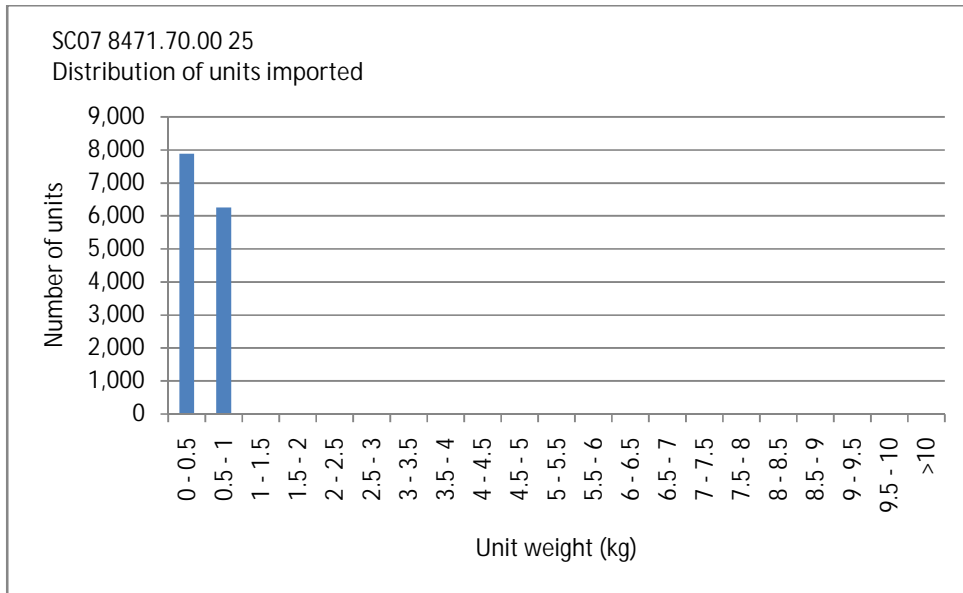


Table 5-21 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,191,409	1%	0.2	1.0	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.6	0.4	0.7	0.1
Use of percentiles	Median	0.9	0.2	1.0	0.6

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	10%	22%

Distribution: All imports between 0-1.0 kg

Proposed conversion factor: 0.6 kg.

Proposed confidence interval: > 0.2 kg, < 1.0 kg

Variation over time: High

SC07 8471.70.00 74 - Hard drives

Figure 5-30 HTISC frequency distribution in CF year

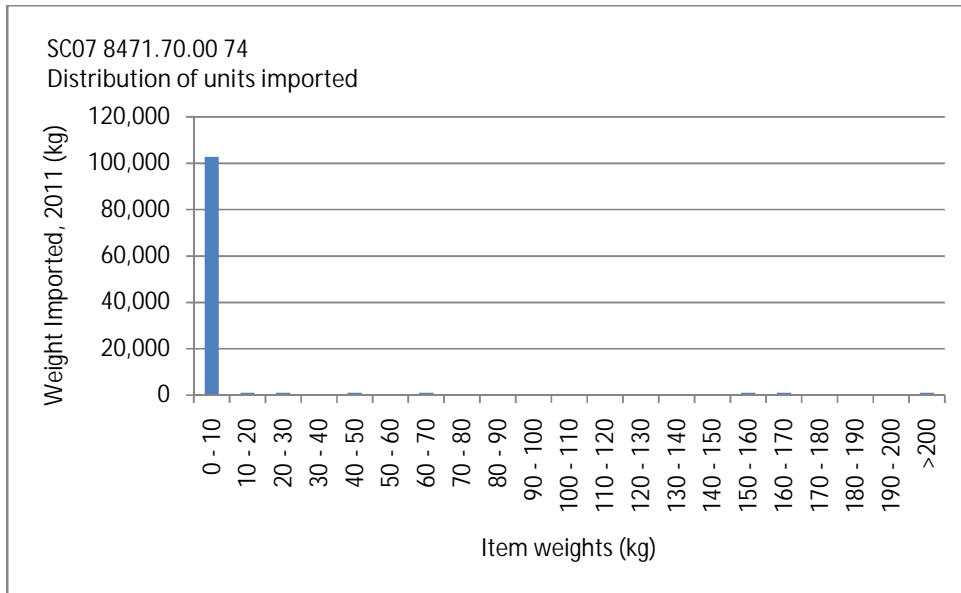


Table 5-22 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	6,324,542	2%	0.1	207.5	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.6	0.6	0.6	0.0
Use of percentiles	Median	0.7	0.2	54.6	53.9

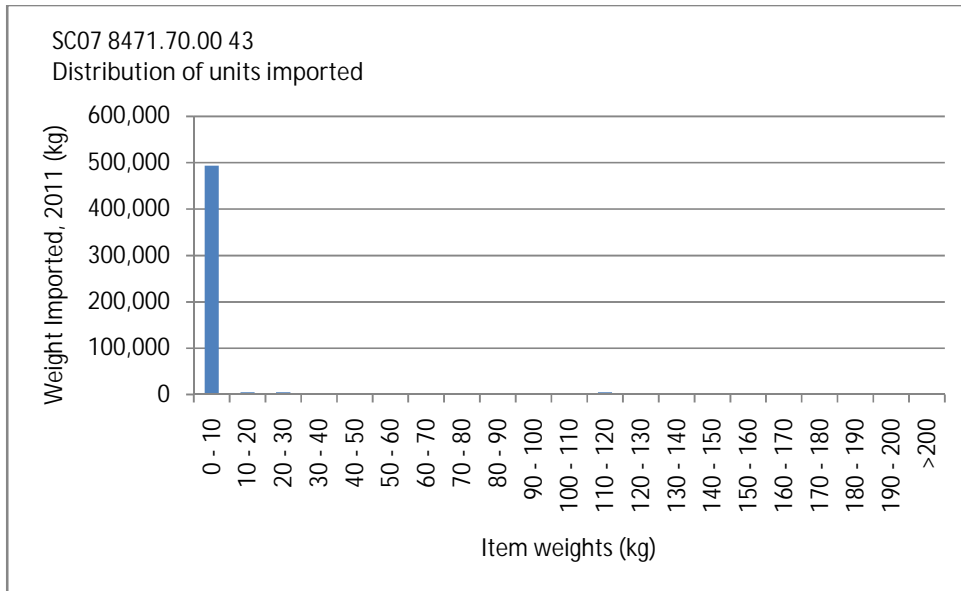
Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	117%	58%

Distribution: Wide distribution. The vast majority of imports are between 0-10 kg with a small number of units greater than 10 kg including as high as 200 kg.

Proposed conversion factor: 0.6 kg.

Proposed confidence interval: > 0.2 kg, <54.6 kg

Variation over time: High

SC07 8471.70.00 43 – other**Figure 5-31 HTISC frequency distribution in CF year****Table 5-23 Conversion factor statistics**

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	3,168,546	16%	0.035	110.7	0.01

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.04	0.04	0.1	0.01
Use of percentiles	Median	0.04	0.04	26.3	26.2

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	11%	-20%

Distribution: All imports between 0-10 kg

Proposed conversion factor: 0.04 kg.

Proposed confidence interval: > 0.04 kg, <26.3 kg

Variation over time: Moderate

SC07 8471.70.00 75 - Floppy drives

Figure 5-32 HTISC frequency distribution in CF year

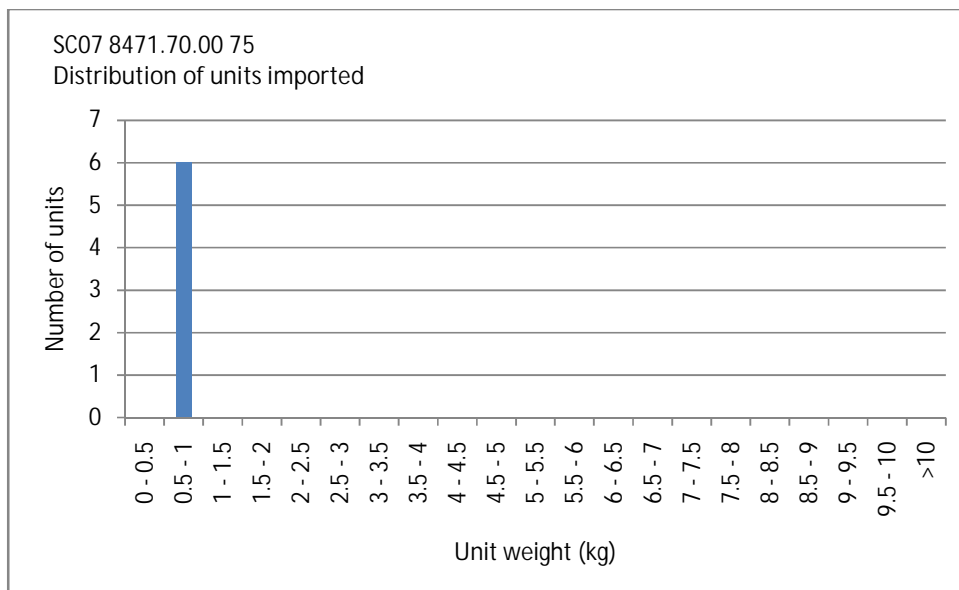


Table 5-24 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2008-09	101,479	0.01%	1	1.0	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	1.0	1.0	1.0	0.0
Use of percentiles	Median	1.0	1.0	1.0	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	100%

Distribution: One brand reporting with one model.

Proposed conversion factor: 1.0 kg

Proposed confidence interval: ± 0

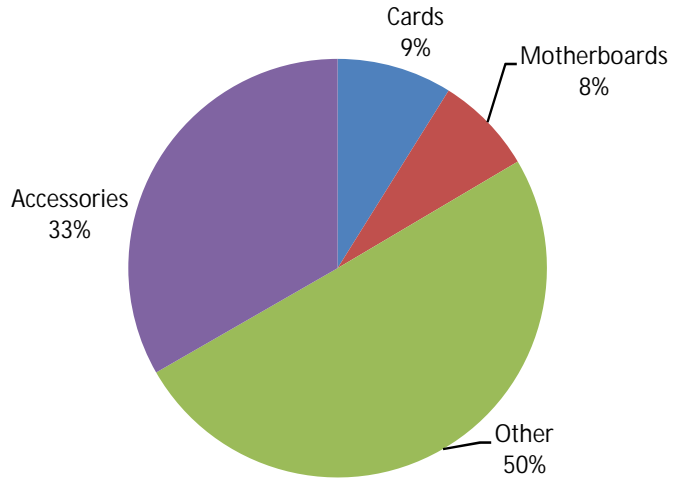
Variation over time: Unknown

1.9. Parts and accessories of computers

Summary of ABS Imports

According to ABS import data, 13,848,775 units of parts and accessories of computers were imported in 2010-11. The proportions are shown in Figure 5-33. The dominant HTISC in this CTCN is *Other*, followed by *Accessories*.

Figure 5-33 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8473.30.00 62 - Cards (including network, sound, video, IDE, SCSI and other similar cards)

Figure 5-34a HTISC frequency distribution in CF year – original data set

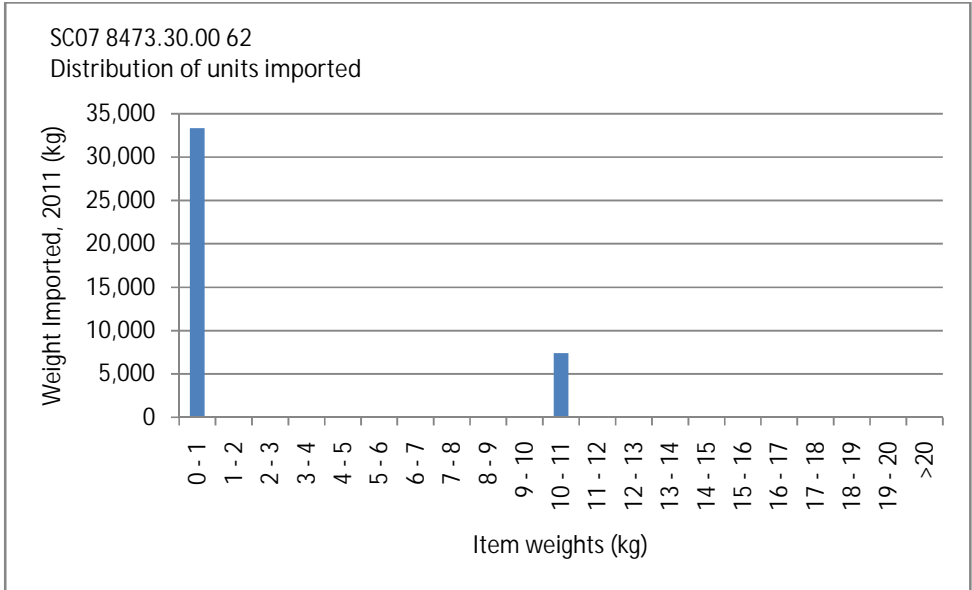


Table 5-25a Conversion factor statistics – original data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,232,057	3%	0.2	10.5	0.7

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	2.3	0.9	3.7	1.4
Use of percentiles	Median	6.6	0.2	10.3	6.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	27%	67%

Figure 5-34b HTISC frequency distribution in CF year – revised data set

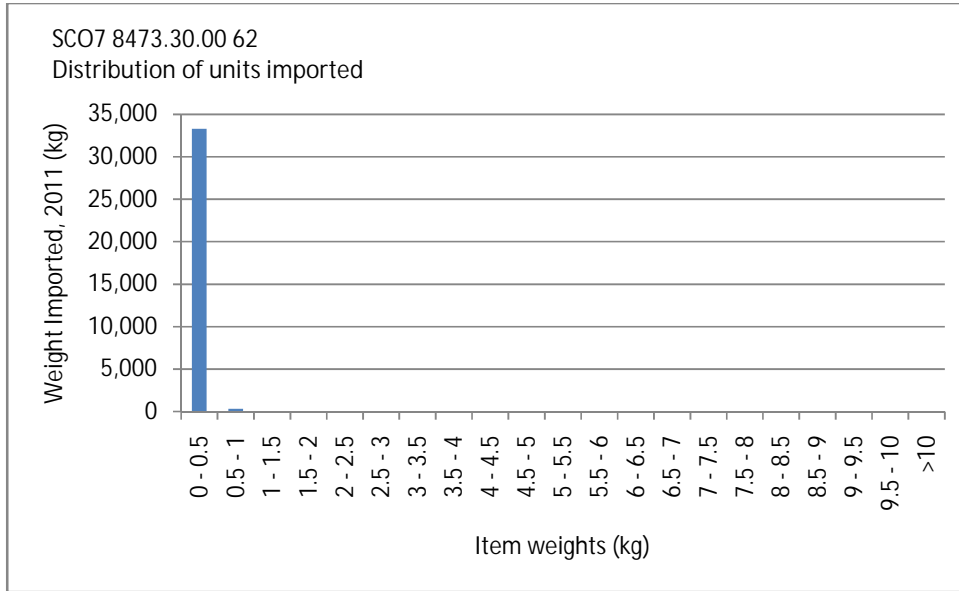


Table 5-25b Conversion factor statistics – revised data set

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,232,057	3%	0.2	0.9	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	0.5	0.1	0.9	0.4
Use of percentiles	Median	0.3	0.2	0.5	0.2

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%		

The original data set, presented in Figure 5-34a and Table 5-25a for this code, ranged from between 0.18 kg and 10.5 kg with the majority of imports between 0-1 kg, with another cluster between 10-11kg. It was agreed with the Department to exclude from this conversion factor any models weighing in excess of 4 kg (Tables 5-34b and Table 5-25b).

Note that by excluding some data from the analysis for this HTSIC, all but one brand importing within this HTSIC are excluded.

Distribution: The majority of imports are between 0-1 kg

Proposed conversion factor: 0.5 kg

Proposed confidence interval: ± 0.4 kg

Variation over time: Not known

SC07 8473.30.00 68 – Motherboards

Figure 5-35 HTISC frequency distribution in CF year

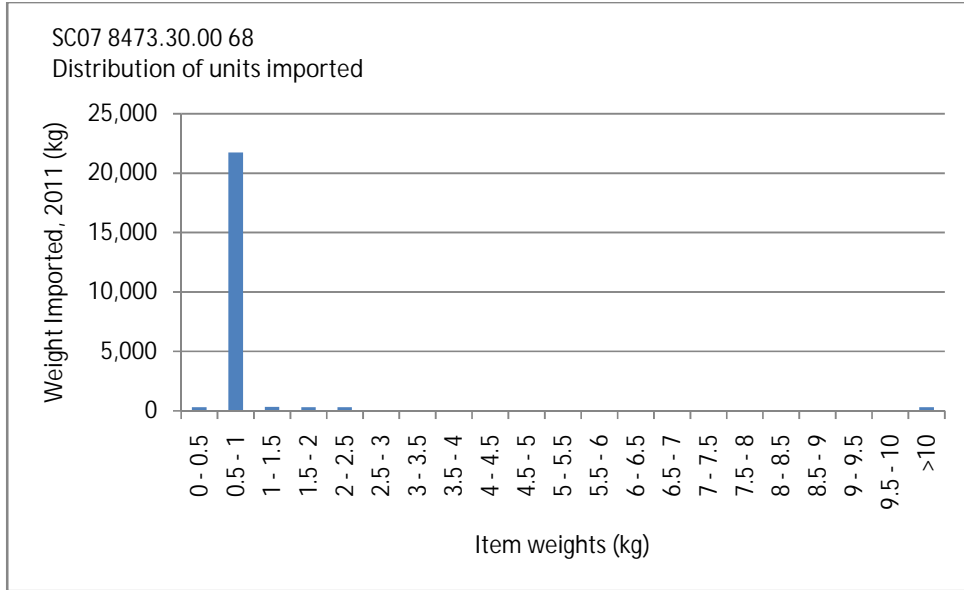


Table 5-26 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,052,081	2%	0.1	15.7	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	0.8	0.4	1.1	0.3
Use of percentiles	Median	0.7	0.6	0.7	0.1

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	0%

Distribution: All imports are between 0-1 kg.

Proposed conversion factor: 0.8 kg

Proposed confidence interval: ±0.3 kg

Variation over time: None

SC07 8473.30.00 70 – Other

Figure 5-36 HTISC frequency distribution in CF year

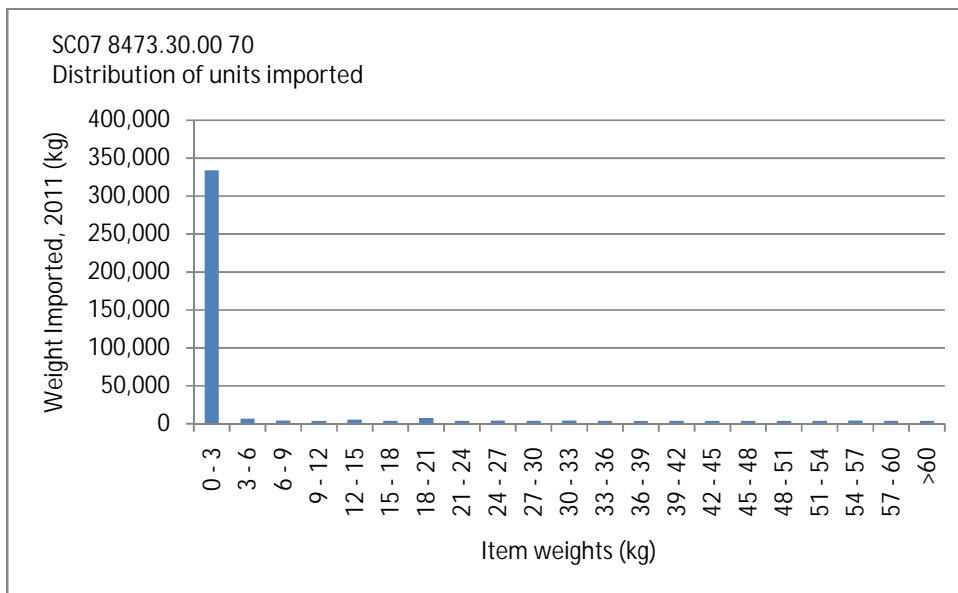


Table 5-27 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	6,952,663	5%	0.01	224.5	0.02

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	1.0	0.9	1.0	0.01
Use of percentiles	Median	14.5	0.2	54.9	40.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	292%	279%

Distribution: The majority of imports are between 0-3 kg.

Proposed conversion factor: 1.0 kg

Proposed confidence interval: > 0.2 kg, <54.9 kg

Variation over time: High

SC07 8473.30.00 85 – Accessories

Figure 5-37 HTISC frequency distribution in CF year

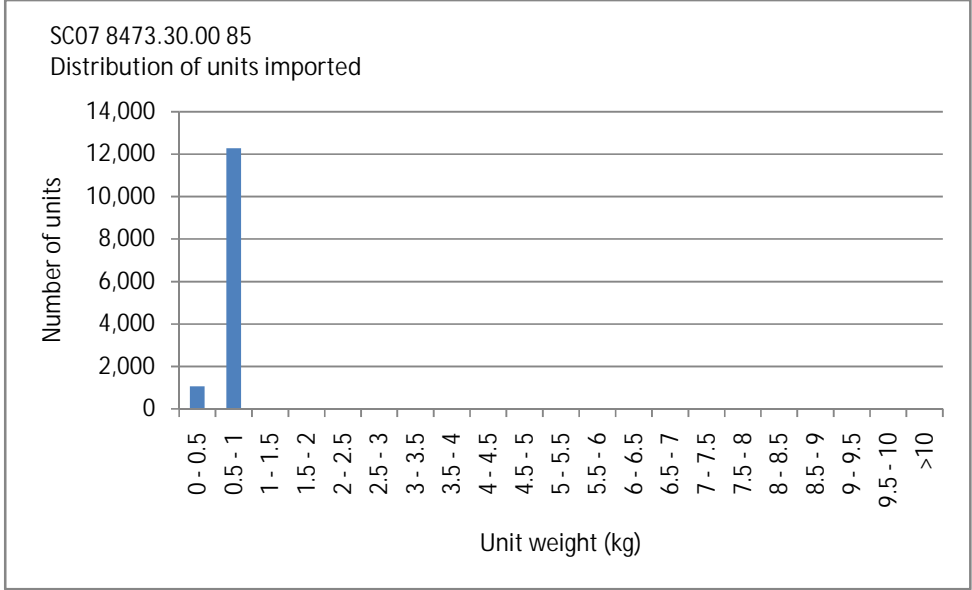


Table 5-28 Conversion factor statistics

SC07 8473.30.00 85 - Accessories

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	4,611,974	13%	0.01	22.5	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	0.9	0.6	1.3	0.4
Use of percentiles	Median	0.8	0.6	1.0	0.2

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-11%	8%

Distribution: All imports are less than 1 kg

Proposed conversion factor: 0.9 kg

Proposed confidence interval: ± 0.4 kg

Variation over time: High

1.10. Internal power supplies for PCs

There is only one HTISC of interest to the Scheme within this CTCN.

Figure 5-38 HTISC frequency distribution in CF year

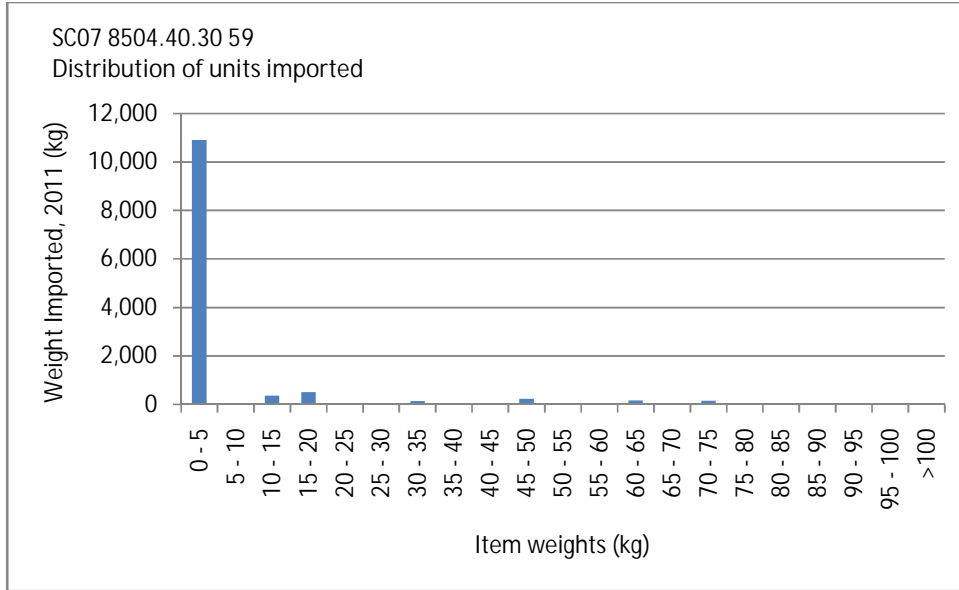


Table 5-29 Conversion factor statistics

SC07 8504.40.30 59 - Internal power supplies for PCs

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	514,862	2%	0.2	73.0	0.3

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval ± (kg)
Approximation to the normal distribution	Mean	4.5	4.0	5.0	0.5
Use of percentiles	Median	14.9	0.7	68.4	53.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	507%	500%

Distribution: Fairly wide distribution, although most imports are between 0-5kg

Proposed conversion factor: 4.5 kg

Proposed confidence interval: ±0.5 kg

Variation over time: High

1.11. Speakers

There is only one HTISC within this CTCN.

Figure 5-39 HTISC frequency distribution in CF year

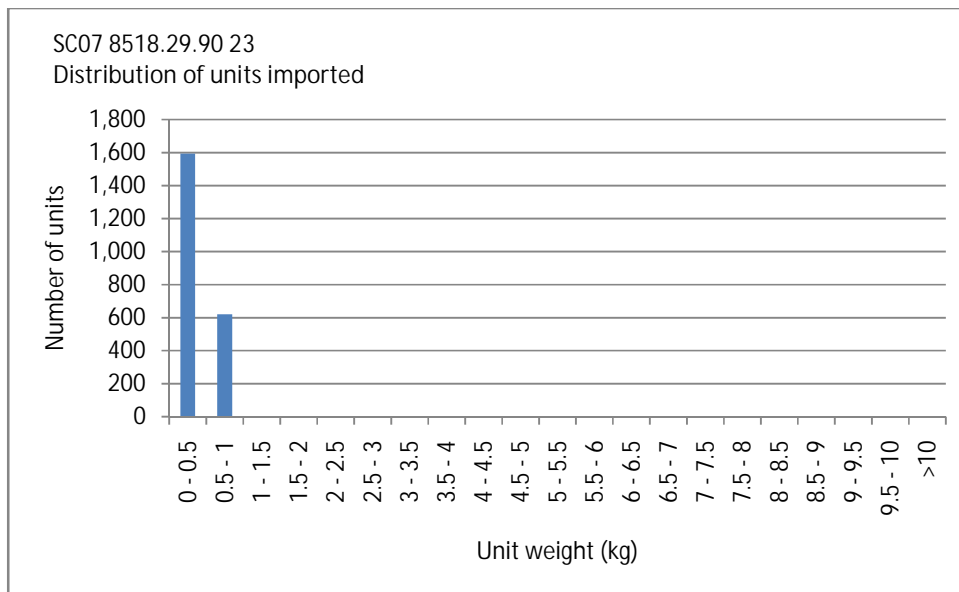


Table 5-30 Conversion factor statistics

SC07 8518.29.90 23 - Speakers etc

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,058,281	0%	0.04	1.0	0.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	0.3	0.04	0.6	0.3
Use of percentiles	Median	0.9	0.04	1.0	0.9

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	100%	118%	62%

Distribution: All imports are between 0-1 kg

Proposed conversion factor: 0.3 kg

Proposed confidence interval: \pm 0.3 kg

Variation over time: High

1.12. Web cameras

SC07 8525.80.10 15 - Web cameras

There is only one HTISC within this CTCN.

The data for this conversion factor is dominated by heavier models at 20 kg, which would appear to represent misclassification based on the known web camera market at circa 0.1 kg.

Recommendation: It is recommended to disregard the data collected on web cams via this exercise and use the proxy of 0.1 kg.

1.13. Computer displays - CRT

Summary of ABS Imports

There is only one HTISC within this CTCN.

SC07 8528.41.00 10 - Computer displays: Computer displays for data processing

Figure 5-40 HTISC frequency distribution in CF year

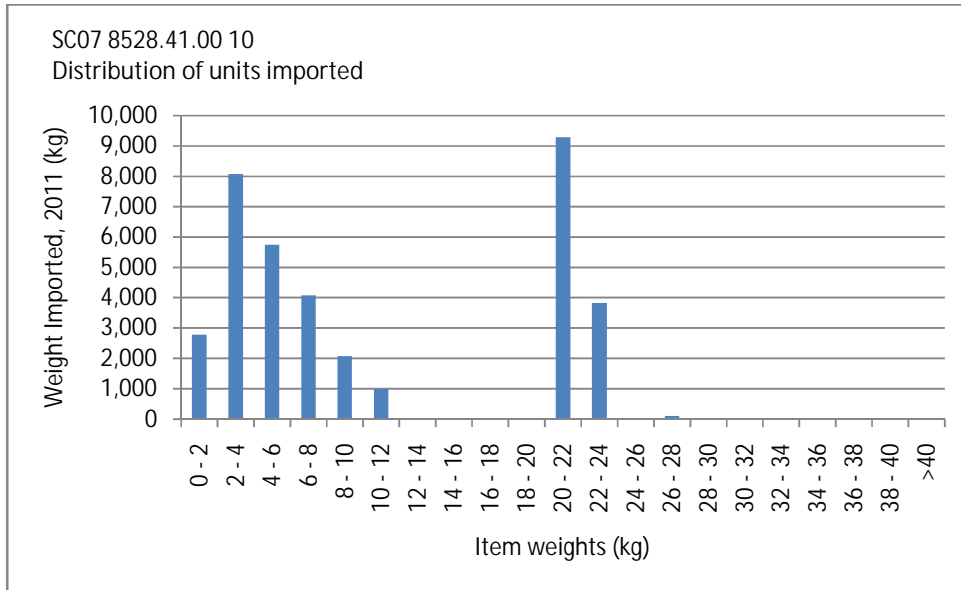


Table 5-31 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	6,969	530%	1.7	28.0	0.5

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	11.4	10.4	12.3	0.9
Use of percentiles	Median	22.0	3.5	23.5	18.5

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	51%	94%

Distribution: Wide variation, with a cluster between 2-6 kg and a cluster between 20-24 kg

Proposed conversion factor: 11.4 kg

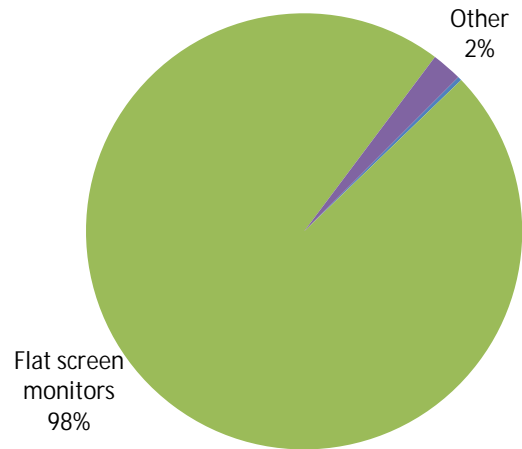
Proposed confidence interval: > 3.5 kg, < 23.5 kg

Variation over time: High

1.14. Computer displays – Non CRT

According to ABS import data, 2,402,967 units of parts and accessories of computer displays were imported in 2010-11. The proportions are shown in Figure 5-41. Most imports in this CTCN are *Flat screen monitors*.

Figure 5-41 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8528.51.00 32 - Computer displays: Flat screen monitors

Figure 5-42 HTISC frequency distribution in CF year

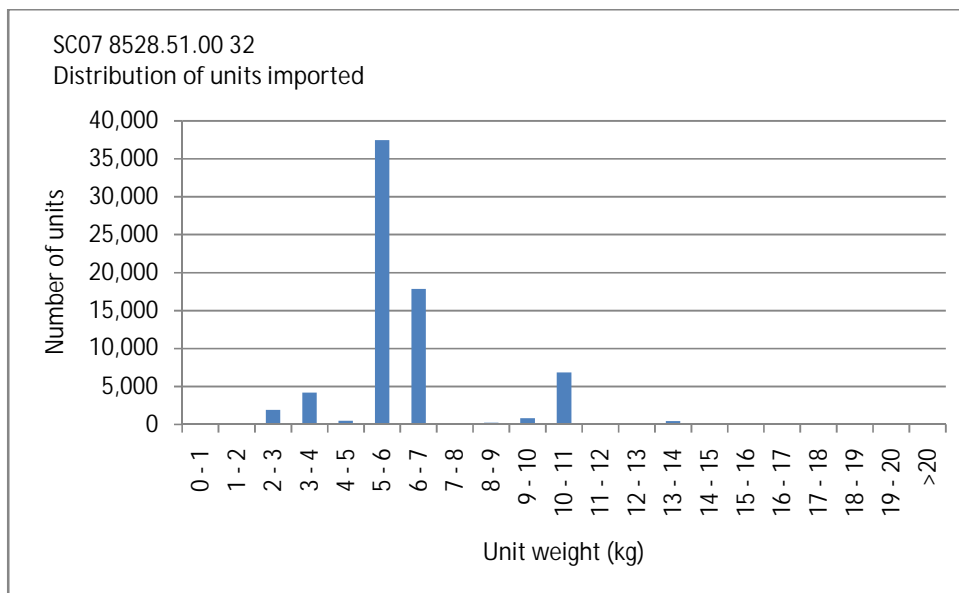


Table 5-32 Conversion factor statistics

SC07 8528.51.00 32 - Computer displays: Flat screen monitors

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	2,348,796	3%	2.7	13.4	0.8

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	6.4	4.9	7.9	1.5
Use of percentiles	Median	6.0	3.3	10.7	4.7

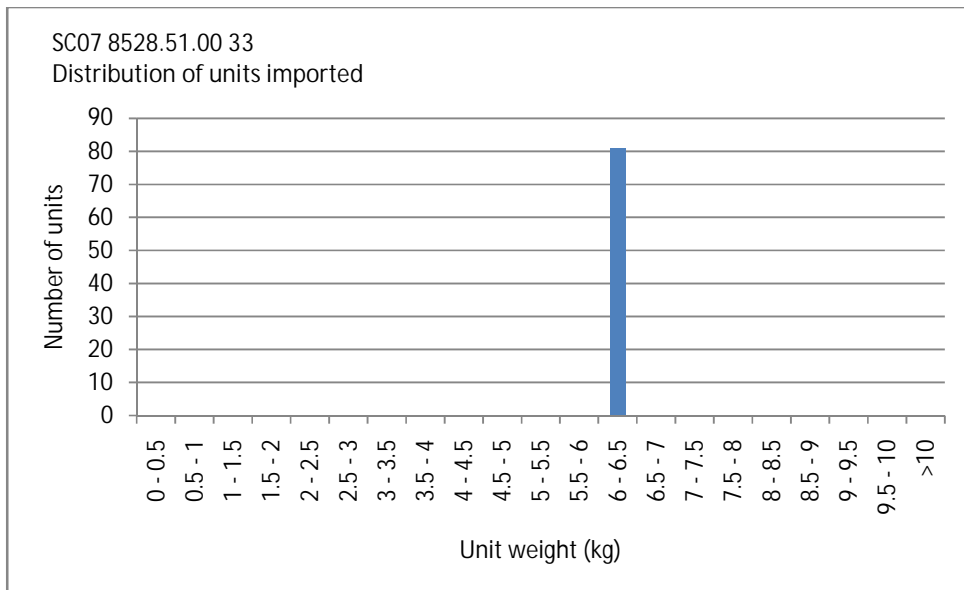
Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	3%	0%

Distribution: A relatively normal shaped distribution, peaking at 5-6 kg with a small cluster at 10-11 kg.

Proposed conversion factor: 6.4 kg

Proposed confidence interval: ± 1.5 kg

Variation over time: Low

SC07 8528.51.00 33 - Computer displays: Other**Figure 5-43 HTISC frequency distribution in CF year****Table 5-33 Conversion factor statistics**

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	54,171	0.1%	6.3	6.3	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	6.3	6.3	6.3	0.0
Use of percentiles	Median	6.3	6.3	6.3	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	0%

Distribution: One brand reporting one model

Proposed conversion factor: 6.3 kg

Proposed confidence interval: ± 0 kg

Variation over time: None

1.15. Black and white televisions

There is only one HTISC within this CTCN.

Figure 5-44 HTISC frequency distribution in CF year

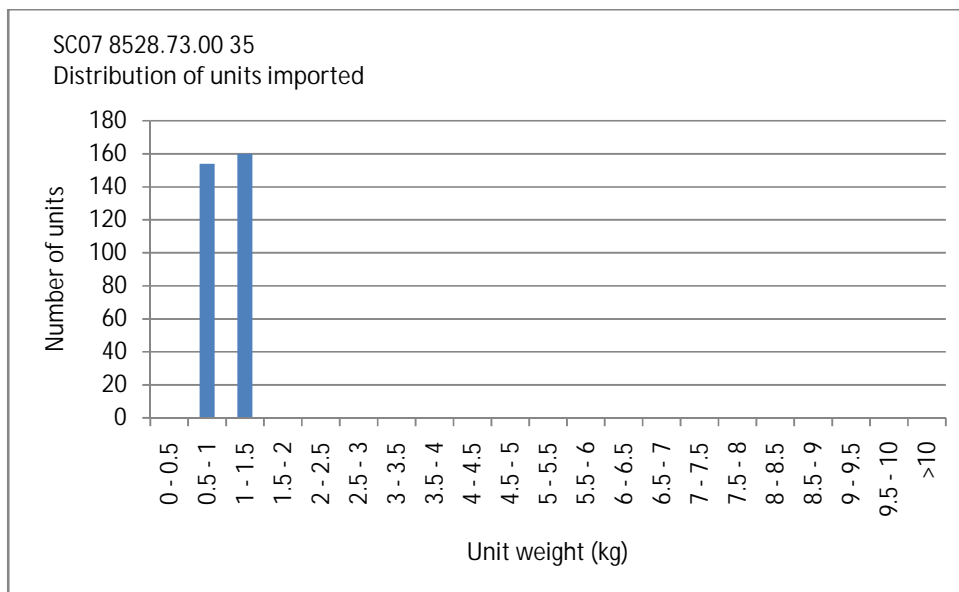


Table 5-34 Conversion factor statistics

SC07 8528.73.00 35 - B&W Televisions

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	202	155%	0.8	1.2	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	1.0	0.7	1.3	0.3
Use of percentiles	Median	1.0	0.5	1.2	0.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-3%	-9%

Distribution: All imports are between 0.5-1.5 kg

Proposed conversion factor: 1.0 kg

Proposed confidence interval: ± 0.3 kg

Variation over time: Low

1.16. Colour televisions

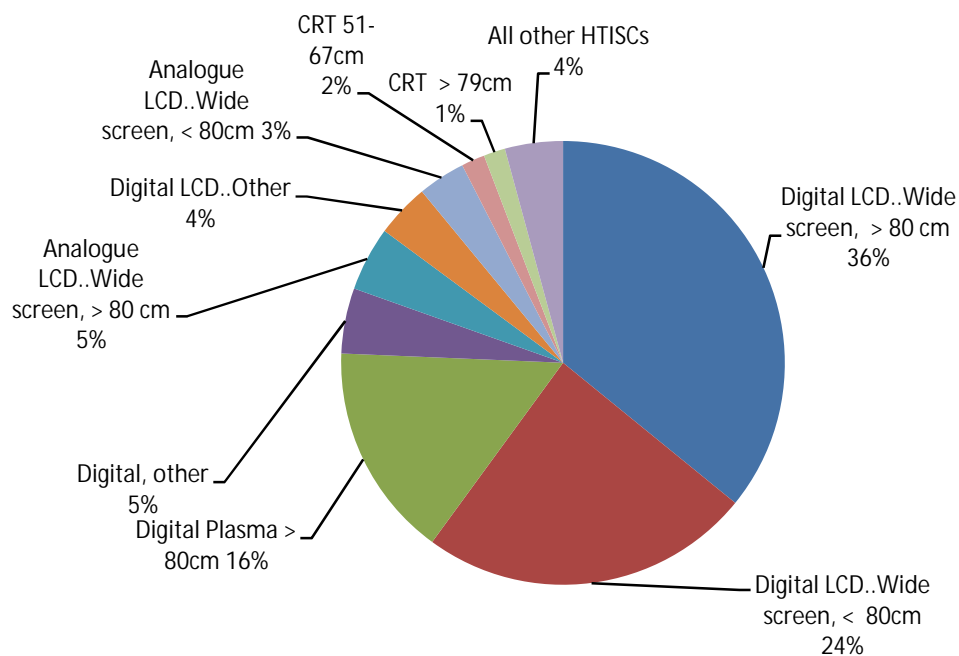
Summary of ABS Imports

According to ABS import data, 3,905,136 units of colour televisions were imported in 2010-11. The proportions are shown in Figure 5-45. Imports in this CTCN are dominated by *LCD screen TVs (with a screen size of greater than 80 cm)*.

Of the 38 HTISCs in this CTCN, sufficient data from which to develop conversion factors was provided for 11.

Note that for several of the HTISCs in this CTCN, the data provided by participating brands was not always for 2010-11, therefore several of the conversion factors are based on data from previous years.

Figure 5-45 Proportion of HTISCs in 2010-11 CTCN imports data (according to ABS)



SC07 8528.72.00 40 - Clr TVs: Analogue, Other

Figure 5-46 HTISC frequency distribution in CF year

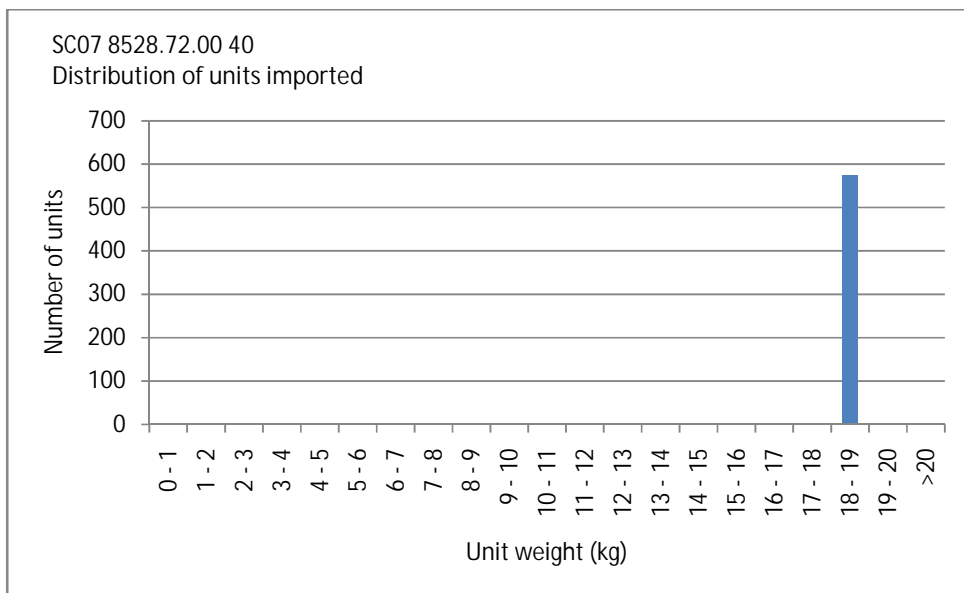


Table 5-35 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2008-09	2,598	22%	18.5	18.5	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	18.5	18.5	18.5	0.0
Use of percentiles	Median	18.5	18.5	18.5	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports			0%

Distribution: One brand reporting one model, last importing in 2008-09

Proposed conversion factor: 18.5 kg

Proposed confidence interval: ± 0 kg

Variation over time: Unknown

SC07 8528.72.00 60 - Clr TVs: Digital LCD..Wide screen, screen size less than 80cm

Figure 5-47 HTISC frequency distribution in CF year

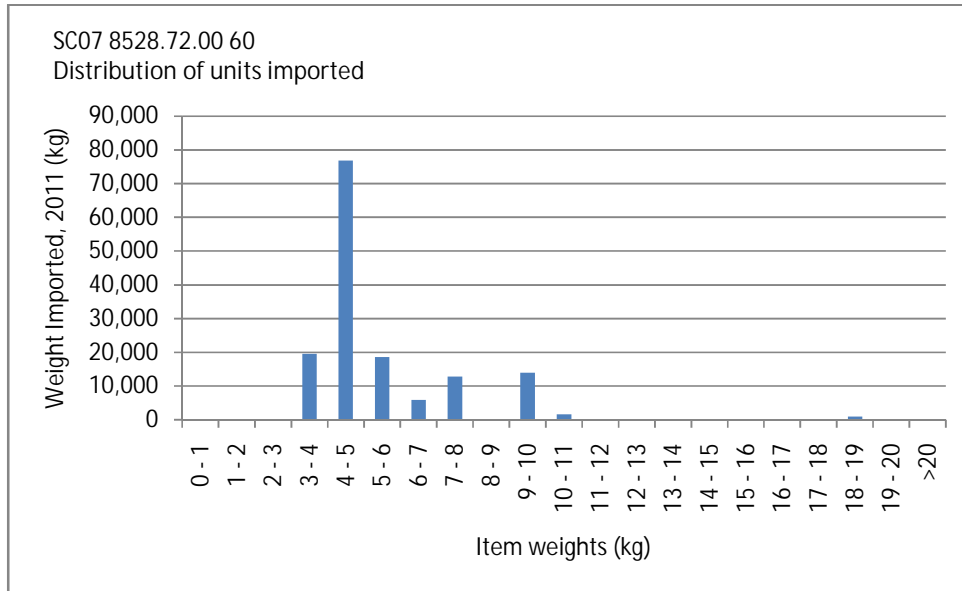


Table 5-36 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	946,800	16%	3.4	18.5	0.3

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	5.4	4.9	5.9	0.5
Use of percentiles	Median	5.0	3.5	10.0	5.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-25%	-46%

Distribution: All imports between 3-10 kg with a peak at 4-5kg

Proposed conversion factor: 5.4 kg

Proposed confidence interval: > 3.5 kg, < 10.0 kg

Variation over time: High

SC07 8528.72.00 61 - Clr TVs: Digital LCD..Wide screen, screen size 80 cm and over

Figure 5-48 HTISC frequency distribution in CF year

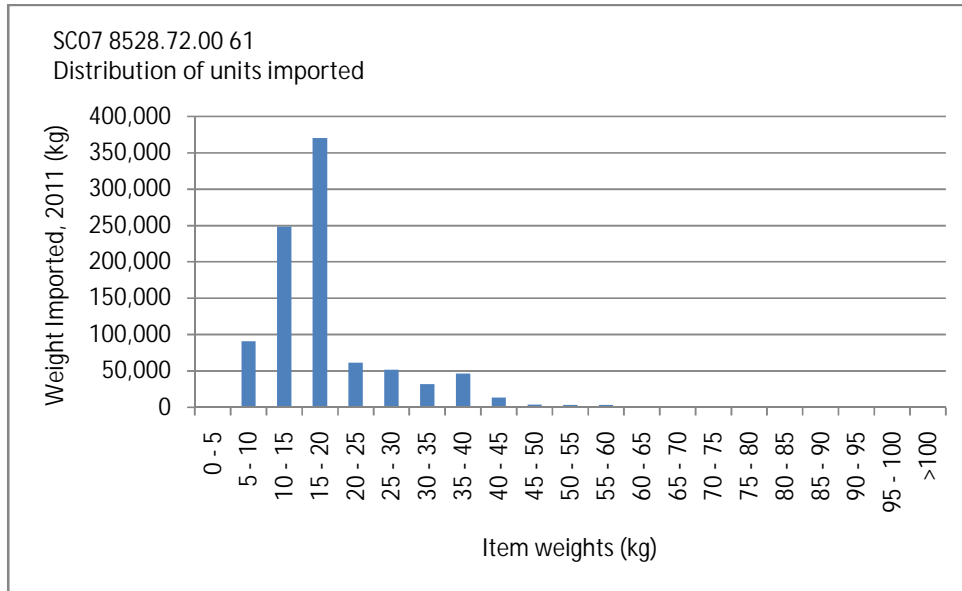


Table 5-37 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	1,404,784	65%	6	59.0	0.3

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	18.4	17.9	18.9	0.5
Use of percentiles	Median	18.4	9.2	45.0	26.6

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	11%	-6%

Distribution: All imports between 5-50 kg with a peak at 15-20 kg

Proposed conversion factor: 18.4 kg

Proposed confidence interval: > 9.2 kg, < 45 kg

Variation over time: Moderate

SC07 8528.72.00 62 - Clr TVs: Digital LCD..Other

Figure 5-49 HTISC frequency distribution in CF year

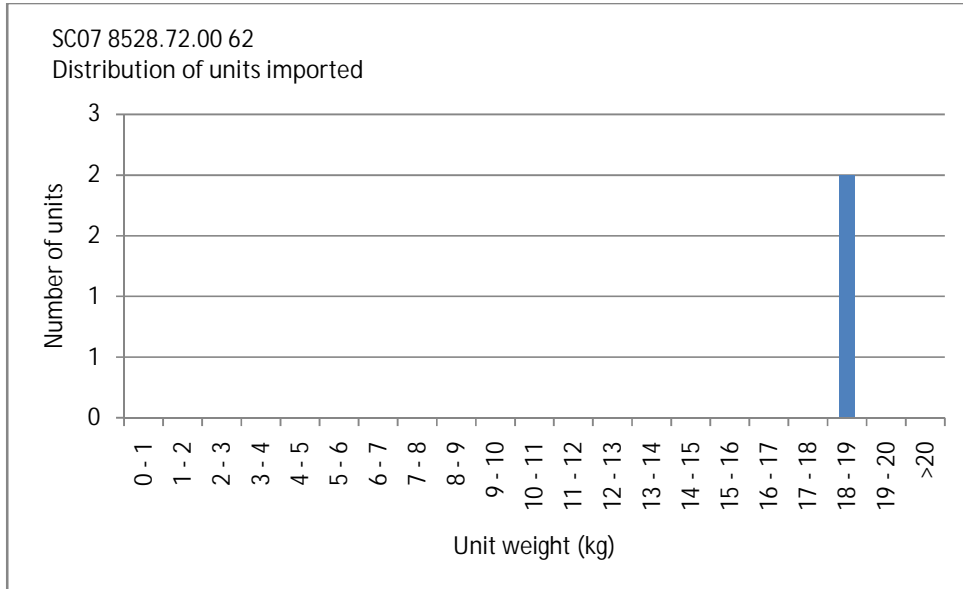


Table 5-38 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	152,974	0.001%	18.5	18.5	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	18.5	18.5	18.5	0.0
Use of percentiles	Median	18.5	18.5	18.5	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	100%		

Distribution: One brand reporting one model

Proposed conversion factor: 18.5 kg

Proposed confidence interval: ± 0 kg

Variation over time: Unknown

SC07 8528.72.00 11 - Clr TVs: Analogue Plasma 80cm+

Figure 5-50 HTISC frequency distribution in CF year

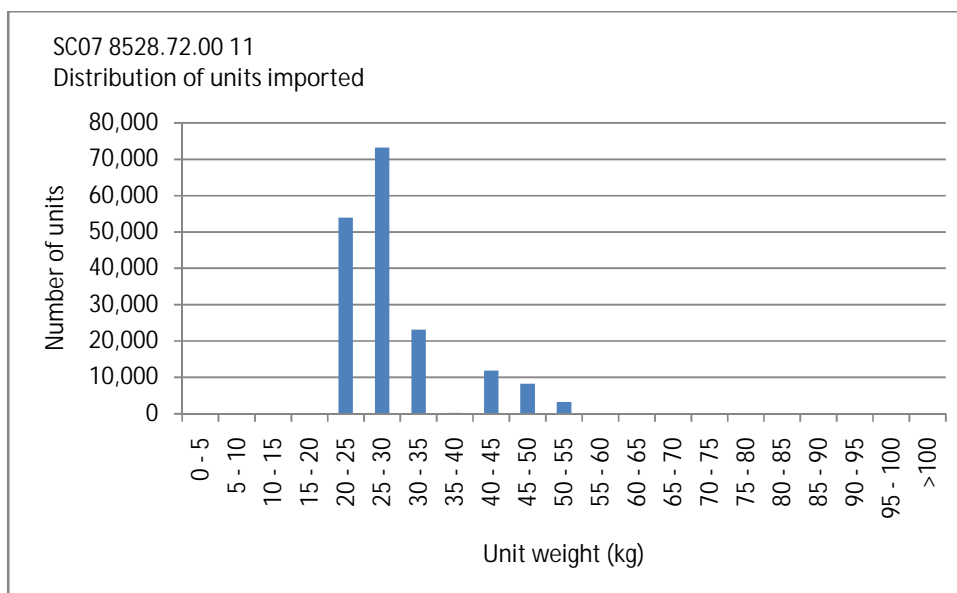


Table 5-39 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	9,192	1891%	21.6	53.0	1.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	30.2	27.9	32.5	2.3
Use of percentiles	Median	30.0	20.3	47.8	17.8

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-3%	-10%

Distribution: All imports between 20-55 kg with a peak at 25-30 kg

Proposed conversion factor: 30.2 kg

Proposed confidence interval: > 20.3 kg, <47.8 kg

Variation over time: Low

SC07 8528.72.00 51 - Clr TVs: Digital Plasma 80cm+

Figure 5-51 HTISC frequency distribution in CF year

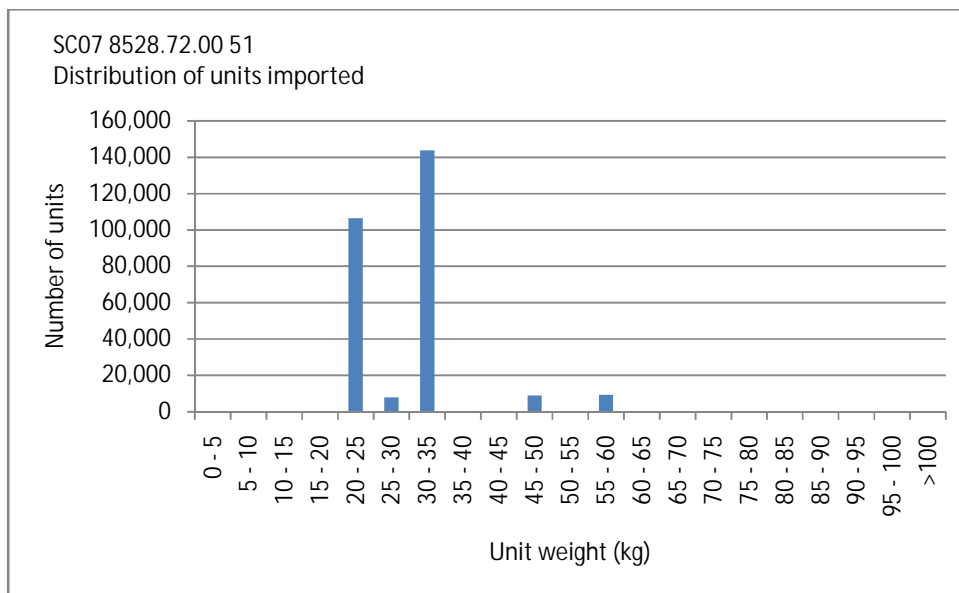


Table 5-40 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	612,171	45%	23.5	58.3	3.4

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	30.1	23.4	36.8	6.7
Use of percentiles	Median	31.6	2.0	58.2	29.7

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	-6%	-17%

Distribution: All imports between 20-60 kg with a peak at 30-35 kg

Proposed conversion factor: 30.1 kg

Proposed confidence interval: \pm 6.7 kg

Variation over time: Moderate

SC07 8528.72.00 31 - Clr TVs: Analogue CRT flat screen 34-50cm

Figure 5-52 HTISC frequency distribution in CF year

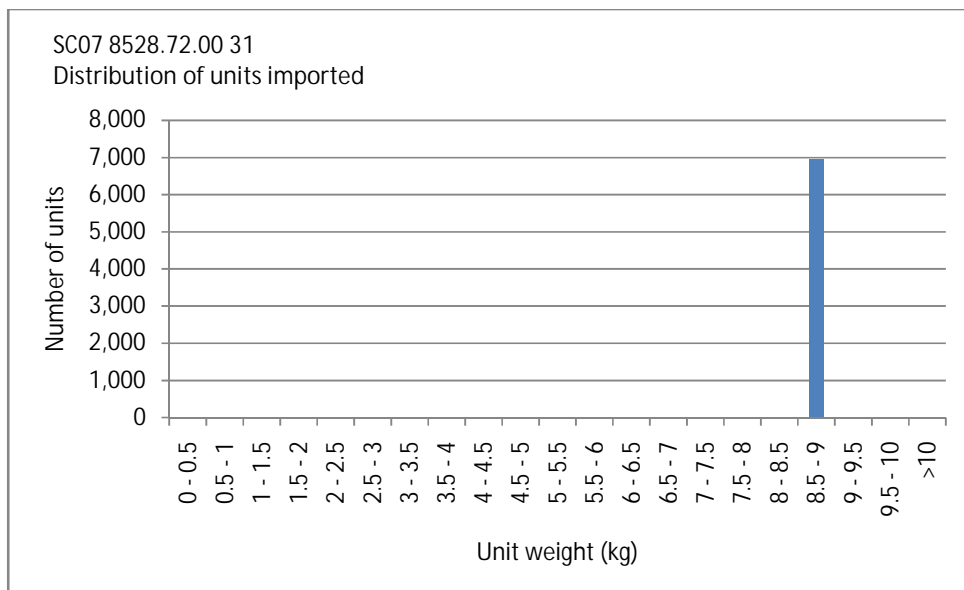


Table 5-41 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2009-10	11,002	63%	8.6	8.6	6.1

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	8.6	8.6	8.6	0.0
Use of percentiles	Median	8.6	8.6	8.6	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports		0%	0%

Distribution: One brand reporting one model. Last imported in 2009-10.

Proposed conversion factor: 8.6 kg

Proposed confidence interval: ± 0 kg

Variation over time: Unknown

SC07 8528.72.00 71 - Clr TVs: Digital CRT flat screen 34-50cm

Figure 5-53 HTISC frequency distribution in CF year

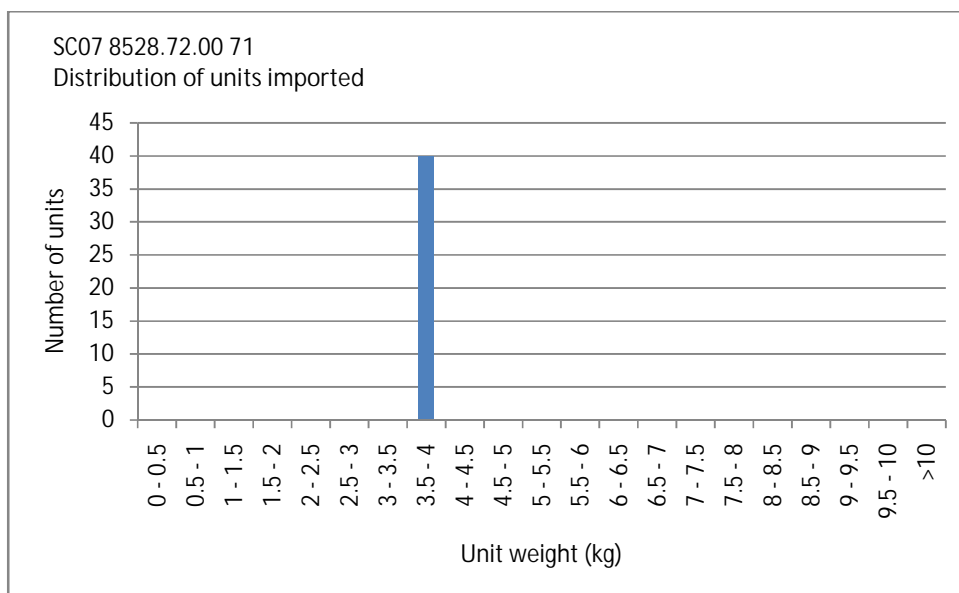


Table 5-42 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2008-09	2,763	1%	4	4.0	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	4.0	4.0	4.0	0.0
Use of percentiles	Median	4.0	4.0	4.0	0.0

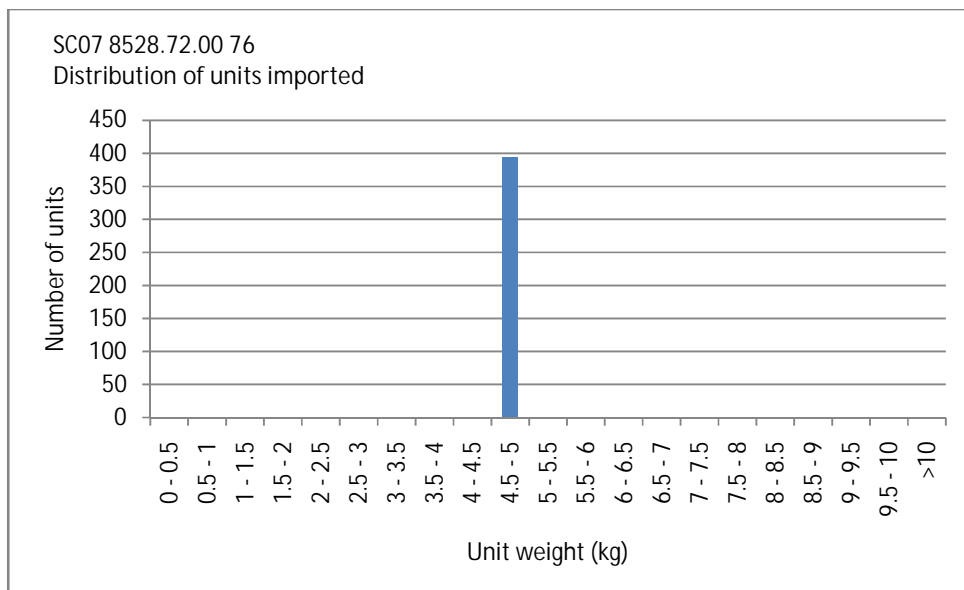
Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports			0%

Distribution: One brand reporting one model. Last imported in 2008-09.

Proposed conversion factor: 4 kg

Proposed confidence interval: ± 0 kg

Variation over time: Unknown

SC07 8528.72.00 76 - Clr TVs: Digital CRT other screen 34-50cm
Figure 5-54 HTISC frequency distribution in CF year

Table 5-43 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	19,563	2%	5	5.0	2.9

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	5.0	5.0	5.0	5.7
Use of percentiles	Median	5.0	5.0	5.0	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	0%	0%	0%

Distribution: One brand reporting one model at 5.0 kg.

Proposed conversion factor: 5.0 kg

Proposed confidence interval: ± 0 kg

Variation over time: None

SC07 8528.72.00 32 - Clr TVs: Analogue CRT flat screen 51-67cm

Figure 5-55 HTISC frequency distribution in CF year

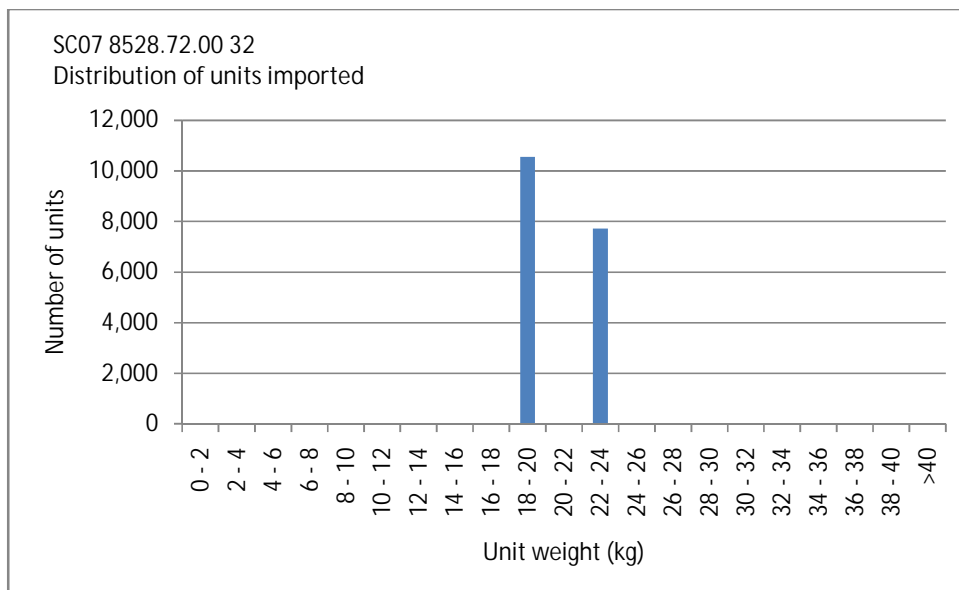


Table 5-44 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2009-10	5,898	310%	17.7	22.5	5.7

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	20.8	9.6	32.0	11.2
Use of percentiles	Median	19.4	17.8	22.4	3.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports		0%	1%

Distribution: Distribution between 18-24 kg

Proposed conversion factor: 20.8 kg

Proposed confidence interval: >17.8 kg, < 22.4 kg

Variation over time: Unknown

SC07 8528.72.00 73 - Clr TVs: Digital CRT flat screen 68-79cm

Figure 5-56 HTISC frequency distribution in CF year

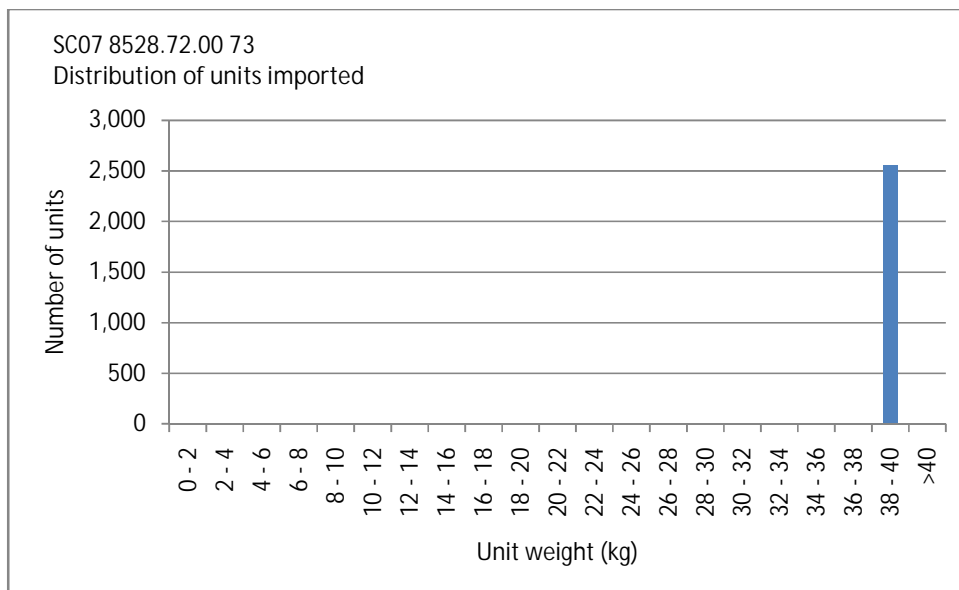


Table 5-45 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2009-10	0	can not be determined	39.9	39.9	0.0

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	39.9	39.9	39.9	0.0
Use of percentiles	Median	39.9	39.9	39.9	0.0

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports		0%	0%

NB There were no ABS imports in the conversion factor year

Distribution: One brand reporting one model at 39.9kg.

Proposed conversion factor: 39.9 kg

Proposed confidence interval: ± 0 kg

Variation over time: None

Data Gaps

For the remaining HTSICs without sufficient data on which to develop a conversion factor, HTSICs were grouped according to screen size (rather than apply the CTCN conversion factor). For most screen size groupings a conversion factor for at least one HTSIC existed.

Screen size groups, representative HTSICs and conversion factors are as follows:

Table 5-46 Conversion factors according to screen size group

Representative SC07 code	CF Year	Factor (kg)	Screen size group	New factor (kg)
8528.72.00 60	2010-11	5.4	LCD < 80 cm	5.4
8528.72.00 61	2010-11	18.4	LCD > 80 cm	18.4
8528.72.00 62	2010-11	18.5	LCD other	18.5
8528.72.00 40	2008-09	18.5		
No factor for a representative screen size. See proxy method below.			Plasma/projection < 80	8.9
8528.72.00 11	2010-11	30.2	Plasma/projection > 80	30.1
8528.72.00 51	2010-11	30.1		
No factor for a representative screen size. See proxy method below.			CRT <34 cm	4.0
8528.72.00 31	2009-10	8.6	CRT 34-50 cm	8.2
8528.72.00 71	2008-09	4.0		
8528.72.00 76	2010-11	5.0		
8528.72.00 32	2009-10	20.8	CRT 51-67 cm	20.8
8528.72.00 73	2009-10	39.9	CRT 68-78 cm	39.9
No factor for a representative screen size. See proxy method below.			CRT > 78 cm	58.0

As there was no representative screen size factor for *Plasma/projection < 80 cm*, extrapolation was used to develop a factor by applying to the factor for *Plasma/projection > 80cm* the weight ratio of *LCD < 80 cm* and *LCD > 80cm*, resulting in a conversion factor of 8.9 kg. In the absence of a conversion factor for *CRT <34 cm*, the lowest value reported for the next largest screen size (4kg) was applied. The conversion factor for *CRT > 79 cm* was developed by extrapolation of the previous three factors to achieve 58 kg.

The CTCN factor is not required for SC07 codes but an evaluation is presented below as it is required for the SC12 factors.

Table 5-47 HTISC codes and screen size groups for which conversion factors are assigned

HTISC	HTISC description	Method used to develop factor	Equivalent screen size group (factors assigned via the proxy method only)
8528.72.00 20	Clr TVs: Analogue LCD..Wide screen, screen size less than 80cm	proxy	LCD < 80 cm
8528.72.00 21	Clr TVs: Analogue LCD..Wide screen, screen size 80 cm and over	proxy	LCD > 80 cm
8528.72.00 22	Clr TVs: Analogue LCD..Other	proxy	LCD other cm
8528.72.00 40	Clr TVs: Analogue, Other	data	
8528.72.00 60	Clr TVs: Digital LCD..Wide screen, screen size less than 80cm	data	
8528.72.00 61	Clr TVs: Digital LCD..Wide screen, screen size 80 cm and over	data	
8528.72.00 62	Clr TVs: Digital LCD..Other	data	
8528.72.00 80	Clr TVs: Digital, other	proxy	LCD other cm
8528.72.00 10	Clr TVs: Plasma Under 80cm	proxy	Plasma/projection < 80 cm
8528.72.00 50	Clr TVs: Plasma Under 80cm	proxy	Plasma/projection < 80 cm
8528.72.00 11	Clr TVs: Plasma 80cm+	data	
8528.72.00 51	Clr TVs: Plasma 80cm+	data	
8528.72.00 15	Clr TVs: Projection under 80cm	proxy	Plasma/projection < 80 cm
8528.72.00 55	Clr TVs: Projection under 80cm	proxy	Plasma/projection < 80 cm
8528.72.00 16	Clr TVs: Projection 80cm+	proxy	Plasma/projection > 80 cm
8528.72.00 56	Clr TVs: Projection 80cm+	proxy	Plasma/projection > 80 cm
8528.72.00 17	Clr TVs: Projection other	proxy	Plasma/projection > 80 cm

8528.72.00 57	Clr TVs: Projection other	proxy	Plasma/projection > 80 cm
8528.72.00 30	Clr TVs: CRT <34cm	proxy	CRT < 34 cm
8528.72.00 35	Clr TVs: CRT <34cm	proxy	CRT < 34 cm
8528.72.00 70	Clr TVs: CRT <34cm	proxy	CRT < 34 cm
8528.72.00 75	Clr TVs: CRT <34cm	proxy	CRT < 34 cm
8528.72.00 31	Clr TVs: CRT 34-50cm	data	
8528.72.00 36	Clr TVs: CRT 34-50cm	proxy	CRT 34-50 cm
8528.72.00 71	Clr TVs: CRT 34-50cm	data	
8528.72.00 76	Clr TVs: CRT 34-50cm	data	
8528.72.00 32	Clr TVs: CRT 51-67cm	data	
8528.72.00 37	Clr TVs: CRT 51-67cm	proxy	CRT 51-67 cm
8528.72.00 72	Clr TVs: CRT 51-67cm	proxy	CRT 51-67 cm
8528.72.00 77	Clr TVs: CRT 51-67cm	proxy	CRT 51-67 cm
8528.72.00 33	Clr TVs: CRT 68-78cm	proxy	CRT 68-78 cm
8528.72.00 38	Clr TVs: CRT 68-78cm	proxy	CRT 68-78 cm
8528.72.00 73	Clr TVs: CRT 68-78cm	data	
8528.72.00 78	Clr TVs: CRT 68-78cm	proxy	CRT 68-78 cm
8528.72.00 34	Clr TVs: CRT 79cm +	proxy	CRT > 79 cm
8528.72.00 39	Clr TVs: CRT 79cm +	proxy	CRT > 79 cm
8528.72.00 74	Clr TVs: CRT 79cm +	proxy	CRT > 79 cm
8528.72.00 79	Clr TVs: CRT 79cm +	proxy	CRT > 79 cm

CTCN 8528.72.00 – other Clr TVs

Figure 5-57 CTCN frequency distribution in CF year

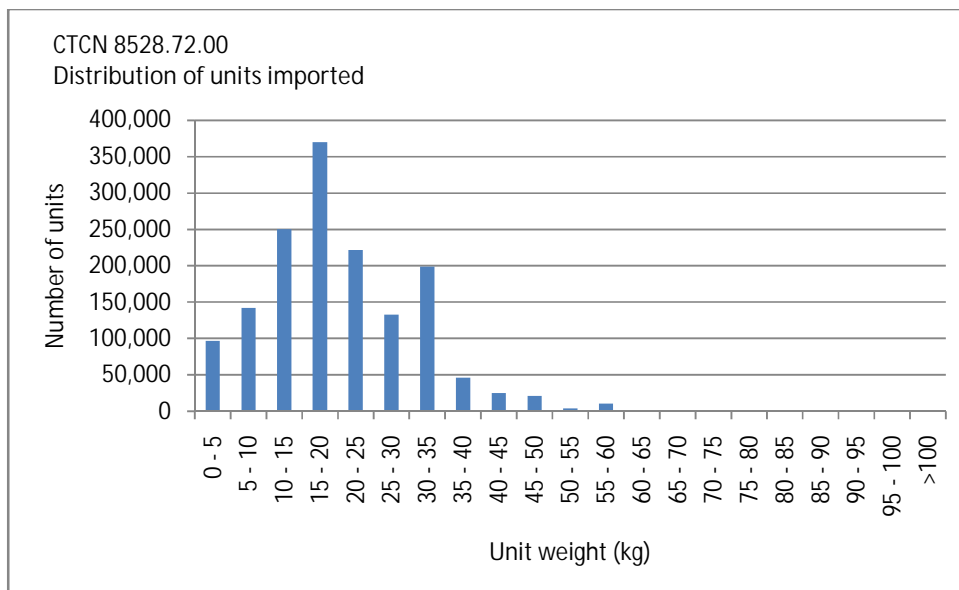


Table 5-48 Conversion factor statistics

CF year	No. of ABS imports	% ABS imports included	Min weight (kg)	Max weight (kg)	Standard deviation
2010-11	3,916,947	39%	3.4	58.3	0.2

Method	Measure of average	Average weight (kg)	Lower limit (kg)	Upper limit (kg)	Confidence interval \pm (kg)
Approximation to the normal distribution	Mean	20.6	20.2	21.0	0.4
Use of percentiles	Median	23.4	9.0	48.8	25.4

Year	2010-11	2009-10	2008-09
Percentage by which the conversion factor over or under estimates the weight of imports	100%	97%	81%

Distribution: A relatively wide distribution, peaking at 15-20 kg

Proposed conversion factor: 20.6 kg

Proposed confidence interval: > 9 kg, < 48.8 kg

Variation over time: Moderate

6. RESULTS - PROPOSED CONVERSION FACTORS FOR SC12

This section presents further evaluations for the 2012 HTISCs. Most 2012 codes are equivalent to the 2007 codes. Some 2007 codes have been consolidated to form one new 2012 code and if sufficient data exists, a new conversion factor has been developed.

In some cases there was insufficient data to develop conversion factors for any of the consolidated 2007 codes, in which case it is recommended that the factor for the higher level CTCN is applied. Where sufficient data exists to only have developed a factor for one of the consolidated 2007 codes, the 2012 factor would be the same as the factor for that one code.

Table 6-1 lists the new 2012 codes, the change if any from the 2007 code, and where appropriate the consolidated 2007 codes and whether a new factor has been developed or which 2007 code to use instead.

As with 2007 HTISCs, several conversion factors for TVs were not derived for a number of HTISCs due to insufficient data being available. The 'equivalent screen size' approach adopted for the 2007 HTISCs is adopted here, with the same 2007 factors applied. A separate table is presented for colour TVs.

Table 6-1 Changes to 2007 HTISCs to form 2012 HTISCs to determine conversion factors (all SC12 HTISCs except colour TVs)

Changes to 2007 HTISCs to form 2012 HTISCs to determine conversion factors				
CTCN	SC12 HTISC	Change type	Consolidated SC07	New code details
8443.31.00	8443.31.00 61	no change		
	8443.31.00 90	consolidation	8443.31.00 62 8443.31.00 90	Apply CF for SC07 8443.31.00 90 : no data for SC07 8443.31.00 62
	8443.31.00 64	no change		
8443.32.00	8443.32.00 71	no change		
	8443.32.00 72	no change		
	8443.32.00 74	no change		
	8443.32.00 79	consolidation	8443.32.00 79 8443.32.00 95	Apply CF for SC07 8443.32.00 79 : no data for SC07 8443.32.00 95
8471.30.00	8471.30.00 20	no change		
	8471.30.00 90	no change		
8471.41.00	8471.41.00 21	no change		
	8471.41.00 91	no change		
8471.49.00	8471.49.00 22	no change		
	8471.49.00 92	no change		
8471.50.00	8471.50.00 23	no change		
	8471.50.00 93	no change		
8471.60.00	8471.60.00 55	no change		
	8471.60.00 91	no change		
	8471.60.00 92	no change		
	8471.60.00 95	no change		

	8471.60.00 98	no change		
8471.70.00	8471.70.00 20	no change		
	8471.70.00 25	no change		
	8471.70.00 74	no change		
	8471.70.00 43	consolidation	8471.70.00 43 8471.70.00 75	Apply factor for SC 8471.70.00 43 : insufficient data for SC12 8471.70.00 75.
8473.30.00	8473.30.00 62	no change		
	8473.30.00 68	no change		
	8473.30.00 70	no change		
	8473.30.00 85	no change		
8504.40.30	8504.40.30 59	no change		
8518.29.90	8518.29.90 xx	no change	8518.29.90 23	Apply factor for SC07 8518.29.90 23 : name change only
8525.80.10	8525.80.10 15	no change		
8528.41.00	8528.41.00 10	no change		
8528.51.00	8528.51.00 32	no change		
	8528.51.00 33	no change		
8528.73.00	8528.73.00 35	no change		

Table 6-2 Proposed conversion factors for SC12 colour TVs

2012 HTISC description	2012 HTISC	Proposed CF (kg)	Assumption / method
Clr TVs: Analogue LCD..Wide screen, < 80cm	8528.72.00 20	5.4	SC07: LCD < 80
Clr TVs: Analogue LCD..Wide screen, > 80 cm	8528.72.00 21	18.4	SC07: LCD > 80
Clr TVs: Analogue LCD..Other	8528.72.00 22	18.5	SC07: LCD other
Clr TVs: Analogue, Plasma	8528.72.00 xa	19.5	average plasma/projection
Clr TVs: Analogue, Projection	8528.72.00 xb	19.5	average plasma/projection
Clr TVs: Analogue,CRT	8528.72.00 xc	26.2	average all CRT
Clr TVs: Analogue,CRT,<51 cm	8528.72.00 xd	6.1	average CRT < 51
Clr TVs: Analogue,CRT, >51 cm	8528.72.00 xe	39.6	average CRT> 51
Clr TVs: Analogue, Other	8528.72.00 40	20.6	CTCN
Clr TVs: Digital, plasma	8528.72.00 xf	30.1	average plasma/projection
Clr TVs: Digital, projection	8528.72.00 xg	20.6	CTCN
Clr TVs: Digital LCD..Wide screen, < 80cm	8528.72.00 60	5.4	SC07: LCD < 80
Clr TVs: Digital LCD..Wide screen, > 80 cm	8528.72.00 61	18.4	SC07: LCD > 80
Clr TVs: Digital LCD..Other	8528.72.00 62	18.5	SC07: LCD other
Clr TVs: Digital, CRT <51 cm	8528.72.00 xh	6.1	average CRT < 51
Clr TVs: Digital, CRT >51 cm	8528.72.00 xi	39.6	average CRT> 51
Clr TVs: Digital CRT, other	8528.72.00 xj	26.2	average all CRT
Clr TVs: Digital, other	8528.72.00 80	20.6	CTCN

Note that where SC12 factors have been developed by averaging SC07 factors, the same approach is applied to develop the confidence ratings.

7. DISCUSSION

7.1 Robustness of conversion factors applied individually

Data provided and assumptions made

The data provided by participants was generally provided in the requested format. Note that the conversion factors and data provided only reflect the data which brand owners were able or willing to provide. The data provided by each brand owner do not necessarily comprise an exhaustive record of all items imported under the specified tariff codes, nor do they comprise an exhaustive record of all items imported under the specified tariff codes for the individual brand.

In terms of data quality, the following should be noted:

- Two brand owners submitted rounded weight figures, suggesting they were estimates.
- Several brand owners were unable to provide data for all items.
- In some cases, either item weights or unit imports were provided. In these cases these line items were excluded from the analysis.
- One brand owner provided its own average weight per tariff code.
- Two brand owners reported by calendar years rather than fiscal, so adjustments were made to convert the data to fiscal year.
- There is a certain degree of misreporting against the tariff codes.

One of the key requirements of this exercise was to develop robust conversion factors and there are different indicators for robustness. At the HTSIC level the indicators of robustness are confidence ratings, sample size and validity over time.

Sample size

Data obtained for each HTSIC was compared with ABS import data for each HTSIC to estimate sample sizes. The greater the sample size the more robust the conversion factors, i.e. the greater the likelihood that the data reported in the sample is representative of all imports. However, sample size is only one indicator of a conversion factors robustness and needs to be considered also in terms of actual imports and the dominance of individual HTSICs within CTCNs.

While Perchards/MS2 aimed for a percentage representation of 70%, the percentage representation for each brand in the returned data ranged from 0.001% to over 1000% across all HTSICs. A difficulty with interpreting the industry and ABS data is that, as admitted by the brand owners, there is a certain degree of misreporting against the tariff codes. For the smaller HTSIC 'populations', such as any HTSICs with fewer than 100,000 units imported, misreporting can have a dramatic impact on the percentage representation, for example misreporting by only a few tens of thousands of units could result in many percentage points over or below the ABS imports value. This misreporting is apparent for HTSICs where a representation of over 100% was reported.

Within the Printing/Imagery sector, an average representation of 33% across all HTSICs was achieved and this is considered adequate. The sector encompasses two CTCNs, relevant to the Scheme: multi function devices (MFDs) and personal printing devices (PDPs). A

representation of 34% was achieved for MFDs, ranging from 84% for ink-jet MFDs and 1% in the category 'Other MFDs'. In the PDPs CTCN, an average representation of 29% was achieved, ranging from 57% for ink-jet printers and 0.1% in the category 'Other printers'.

For computer related HTISCs an average representation of 32% was achieved and this is also considered adequate. Computers comprise of five CTCNs: mobile units, three categories of desktops and similar (referred to in this report as A, B and C), and computer displays, with a representations of 53%, 70%, 2%, 56% and 4% respectively.

The overall representation for televisions (including black and white televisions) was 47%, ranging from no representation at all for several HTISCs to 1891% representation. Note that the HTSIC representation of 1891% and another of 310% suggest a degree of misreporting. These two HTSICs are both fairly small in terms of ABS imports (9192 and 5859 units respectively) and misreporting by a few thousand units would have a significant effect on the percentage representation. The dominant HTSIC in the group, with approximately 1.4 million ABS imports had 65% representation and misreporting against this HTSIC would have a negligible impact on the resultant percentage representation.

Despite the variation in percentage representation across the HTISCs comprising printing/imagery, computer and television CTCNs, Perchards/MS2 highlight that this method of determining robustness is only a proxy, particularly given the misalignment between ABS unit import data and data provided for the sample. This data confirms some of the concerns raised by the industry in the feasibility study whereby brands suspect that a degree of misreporting is occurring by brokers when the products are being imported. Viewed at a CTCN level as opposed to HTSIC level, the effect of potential misreporting appears to be more diffused, and average representations of 33%, 32% and 47% is considered a reasonable sample size on which to base the conversion factors.

Sample sizes for peripheral HTISCs were fairly low and averaged at 2%, with a range from 0.3% to 20.2% across all peripheral HTISCs. Although study participants were invited to provide data on peripherals, due to the light weight nature of peripherals, Perchards/MS2 were advised that this type of data was not stored by the study participants. Perchards/MS2 then sought data from three large peripherals importers, with only one importer providing data. Although a limited sample size was used to develop conversion factors for peripherals, at a Scheme level, the relatively lighter weight of these HTISCs as compared with heavier substantive products, makes them of lesser significance when estimating Scheme targets and calculating import shares. It is therefore recommended that the conversion factors for these HTISCs provide an appropriate proxy which can be improved over time, and should be included in the Scheme.

Variation over time

The robustness of the conversion factors can also be gauged by using the conversion factors to calculate the weight of past imports. In most cases, the variation over time from 2010-11 to 2009-10 is assigned as 'high'. However, comparing the conversion factor with the average import weight to 2008-07 normally gives a variation over time as moderate or low. This measure is considered more relevant as, for estimating Scheme targets, the factors will be used to calculate a proxy for the weight of imports over several years, i.e. the 2012-13 target will be based on imports from 2009-10, 2010-11 and 2011-12. In most cases, a moderate or high variation over time between the conversion factor year and previous years is negative, meaning that the *calculated weight imported* understates *actual weight imported*.

Confidence thresholds

As detailed in the methodology, two methods are used for deriving confidence thresholds: *approximation to the normal distribution* and *use of percentiles*. In most cases approximation to the normal distribution is inappropriate as the data is not normally distributed. Instead, the use of percentiles approach was adopted to determine the weight thresholds for 95% of the distribution. Unlike confidence limits developed for normal distributions, the confidence intervals are not symmetrical and give a wide range, representing the high variation within the distribution.

Where the percentage representation is low, narrow confidence intervals of zero do not necessarily signify a low variation in the distribution, rather the narrow confidence intervals reflect the distribution of a small sample of data.

7.2 Robustness of conversion factors applied collectively

At the collective level, robustness is evaluated by considering the extent to which the conversion factors accurately calculate the weight of total imports and the extent to which it provides a reasonable measure of the import share of individual importers. This has been gauged by comparing the calculated weight for all importers with the actual weight imported based on the known weights provided by each participant. It also involves comparing the difference in import share for individual importers under actual weight and calculated weight scenarios. The results are only indicative as importers did not provide data on all of their imports.

Overall impact

This section differentiates between *overall actual import weight* and the *overall calculated import weight*. The *overall actual import weight* has been calculated by summing each participating brands' imported weight for each HTSIC. The *overall calculated import weight* has been calculated by applying the conversion factors to the total number of units imported for each HTSIC (Table 6-1).

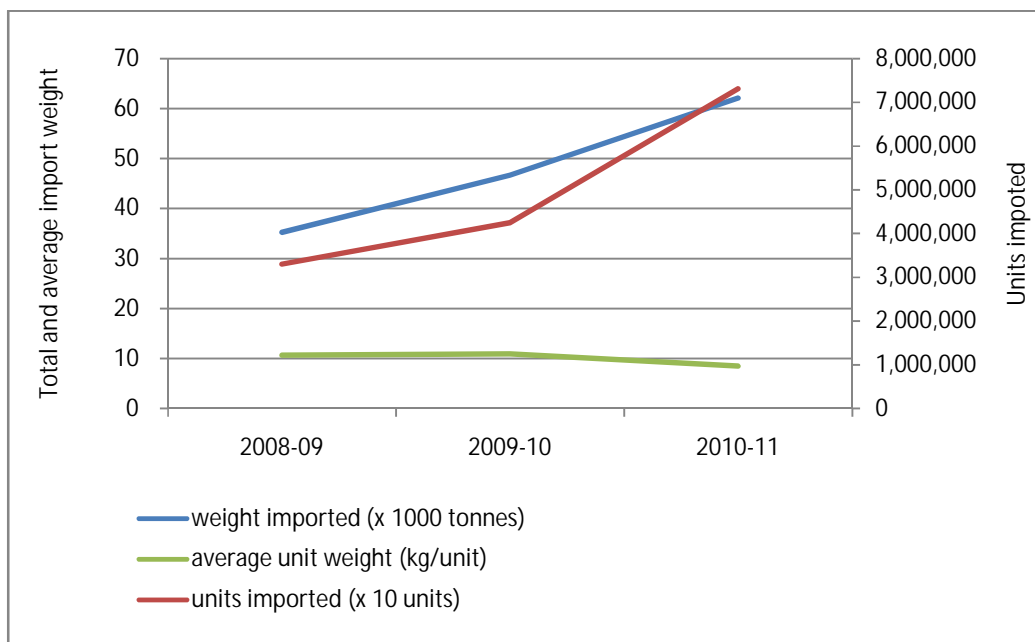
Table 6-1 Actual import weight compared to calculated import weight

Year	2010-11	2009-10	2008-09
Overall actual import weight	62,082	46,684	35,273
Overall calculated import weight	56,526	39,805	30,998

The *overall calculated import weight* is consistently lower than the *overall actual import weight* in each year, at 9% lower in 2010-11, 15% in 2009-10 and 12% in 2008-09. This is expected given the elimination of some heavier weight products for MDFs (laser and other MFDs) and computer accessories (cards) and also because the conversion factor is set at a lower weighted average weight than that for the previous years. This is appropriate given that the weighted mean weight of imported units has decreased since 2008-09¹ (Figure 6-1).

¹ This is based on data reported by participating brands

Figure 6-1 Annual weighted mean weights derived from unit and weight import data



While the rate of decrease of the weighted average unit weight cannot be pre-empted, it is likely that a decrease will continue. Where the conversion factors are applied to 2011-12 data it is expected that *overall actual import weight* would be slightly over estimated if the factors were based on all data. However the effect of excluding some heavier weight products from the factors is likely to continue to apply in 2011-12, thus it is expected that the conversion factors will still slightly underestimate overall import share.

In 2012-13 the Scheme target will be based on imports over three years, from 2009-10 to 2011-12. The conversion factors are expected to underestimate the *overall actual import weight* during these years with the 2011-12 underestimate expected to be smaller than the 2010-11 (-15%) and 2009-10 (-12%) underestimates, where the trend of declining product weights continues. Accordingly, it is expected that the Scheme target in 2012-13 will slightly underestimate the *actual weight of imports*.

Impact of applying factors to each brand/importer

A separate analysis was carried out on individual brands to determine the effect of the conversion factors on each brands' import share. Import share will be used as the basis for allocating targets under the Scheme. Import share will be calculated by dividing an individual liable party's imports in the previous financial year by the total imports by all liable parties.

This section distinguishes between *importer actual weight* and *importer calculated weight*. *Importer actual weight* refers to the actual weight per participating importer summed across all HTISCs, as reported for the exercise. The *importer calculated weight* has been calculated by applying the conversion factors to the total number of units imported for each HTSIC for each importer.

The analysis compares the difference in import share for each brand that participated in the study under an actual weight and calculated weight scenario. This was done by determining the calculated weight of each brand as a percentage of total imported weight and the actual weight as a percentage of total imported weight. Total imported weights for each year are

determined by applying the conversion factors to the ABS unit import data, which were shown above to collectively provide a lower but reasonable estimate of total actual weight imported. The results are presented in Table 6-3. The actual weight import shares presented in Table 6-3 would likely to be lower if they were calculated as a proportion of total actual weight given that total calculated weight slightly underestimates total actual import weight.

Table 6-3 Comparison of import share under importer actual weight and importer calculated weight

	2010-11		2009-10		2008-09	
	Actual	Calculated	Actual	Calculated	Actual	Calculated
Brand1	2.1%	2.0%	2.8%	2.7%	1.9%	1.9%
Brand2	2.3%	3.1%	2.0%	2.2%	1.2%	1.2%
Brand3	2.6%	3.1%				
Brand4	4.1%	2.9%	4.4%	3.1%	2.6%	1.9%
Brand5	6.8%	4.3%	3.8%	1.4%	1.4%	0.9%
Brand6	1.8%	2.0%	2.1%	2.2%	1.5%	1.7%
Brand7	1.4%	0.1%	2.1%	0.2%		
Brand8	0.005%	0.004%				
Brand9	4.5%	3.5%				
Brand10	1.1%	1.3%	2.4%	2.5%	1.7%	1.5%
Brand11	6.4%	6.8%	8.8%	8.7%	6.5%	5.5%
Brand12	6.3%	6.5%	7.3%	7.4%	6.5%	5.9%

The results presented in this table are intended to provide an example of the impact of using conversion factors to calculate import share as compared to actual weight. As brands did not provide data for all of their imports, these numbers are just indicative and are not representative of actual import share under the Scheme. The import share has been calculated based on total imports, not total liable party imports as proposed under the Scheme and is presented as a whole rather than separate import shares for televisions and computer products.

Table 6-3 shows that in 2010-11 the difference between actual and calculated import share ranged from -2.6 to +0.8%. This shows that while there is a difference between the actual and imported weight for each brand that participated in this study (as expected), when viewed from an import share perspective the impact of using conversion factors compared to actual weight is not significant and provides a reasonable basis for allocating liability under the Scheme.

The results shown in Table 6-3 for 2009-10 and 2008-09 are less relevant for this analysis, as import share under the Scheme for allocating targets will be based on results from the previous financial year (e.g. the first target year of 2012-13 will base import share on 2011-12 data). However, these results do show that due to product light weighting, in most cases in 2009-10 and 2008-09 the conversion factors result in a lower calculated weight share than actual weight share.

Conclusion

What was not known until the exercise had been carried out was the degree of uncertainty when applying the conversion factors to each tariff code. Although several outliers result from the underpinning data and there is some variation, taken as a whole the conversion factors provide a reasonably robust set of values for estimating the actual weight of imports. Applying the conversion factors for each tariff code for all brands in terms of import share shows that the extent to which the conversion factors under or over state import share when

compared to actual weight ranges from -2.6% to 0.8%. Perchards/MS2 conclude that the conversion factors are robust enough to provide an estimate of the weight of imports in order to determine waste quantities. Under the Scheme it is proposed that estimating waste for 2012-13 would involve applying the conversion factors to HTISCs over the period 2009-10, 2010-11 and 2011-12. Assuming variation in the future will be similar to variation in the past, the import weight estimate calculated would be robust both overall and for each brand.

8. APPENDIX A - Methodology for deriving the Conversion Factors

The basis for the methodology for deriving the conversion factors, as set out in the feasibility study, was to develop a weighted average weight for each 2007 HTISC tariff code and draft 2012 HTISC tariff code. The weighted average represents the 'typical weight' for each code, calculated as the total weight of all imports divided by the number of units imported.

This approach involved gathering real data for all products, models and items imported within each HTISC (referred to herein as *models*) including model weights and the number of units of each model imported.

It was agreed between the Department and Perchards/MS2 to seek this data from industry brand owners. While the industry brand owners do not cover all industry imports, they account for a significant proportion, and with many being members of PSA and AIIA, it was considered that they would be willing participants in the exercise.

In order to achieve a weighted average as representative as possible of all industry imports the exercise aimed to gather as large a data set as possible.

The following results section presents an evaluation from which to develop a conversion factor for each HTISC. The evaluation includes for each HTISC:

- A bar chart of the frequency distribution of the data
- Maximum and minimum value of the range
- Standard deviation
- Mean
- Median
- Two measures of confidence (see appendix A for more details)
- A measure of variation of the conversion factor over time

Note that variation over time is expressed in terms of a variation rating: Where this percentage stays at 0% there is not variation over time. A variation of 0-10% is assigned a low variation over time, a variation of 10-20% is assigned a moderate variation over time, and anything greater is assigned high variation. Where data is supplied for only one year then the variation over time is not applicable.

a. Data Gathering

The data collection element was largely directed by the information required to determine the conversion factors and the best method for collecting this information.

Data on weights and units information was collected from a sample of import data held by the television, computer and computer peripheral industry, referred to as the *industry*.

Data requirements

The fundamental information required to develop the conversion factors, or weighted averages for a given year, was, for each HTISC, the number of units imported and the weight of these units.

While 2010-11 data was required in order for the conversion factors to be based on the most recent year's import data, the previous three years of data was requested in order to provide an indication of how well the factors may hold their validity over time.

The underlying assumption to this approach was that unit/weight information provided by brand owners is representative of all of Australia's imports (for the designated HTISCs).

Brand owner participation

While it was agreed to consult with around ten brand owners for this exercise, all members of the two relevant industry associations were invited. The conversion factors incorporate all brand owners that responded and provided data. In addition, the Department assisted with the exercise by inviting several peripherals importers (who are not members of either industry association) to participate, of which one did.

Twelve brand owners provided data for the exercise: ACCO, Apple, Canon, Epson, Fuji Xerox, HP, Lenovo, LG, Panasonic, Sanyo, Sony, and Toshiba.

Sample size

The sample size (in terms of number of brand stakeholders consulted) was determined by the number of brand owners who responded. More pertinent to the exercise was the sample size per HTISC (i.e., the number of units included in the exercise as a percentage of the total).

An estimate of the number of units imported under each HTISC is available from the Australian Bureau of Statistics and was provided to Perchards/MS2 in an appropriate format by the Department.

With every brand owner's data set, the number of units imported within each HTSIC was summed to determine the percentage of all imports included in the exercise. This helped to determine whether sufficient unit/weight data had been collected and also gives an indication of robustness of the derived conversion factors.

An aim of 70% representation was set out in the feasibility study. In practice, this varied from zero representation of total imports to 533% representation of total imports, demonstrating a discrepancy between how brand owners reported data for this exercise and how importers report data to ABS. The feasibility study provides further details around data and reporting issues.

Data sought

Participants were provided with a reporting template (Attachment 1) in Excel format in which to record, for each tariff code:

For each model imported under the identified HTISCs:

- The code the model is imported under
- The model weight
- The number of units imported for three years' worth of data.

b. Data Analysis

Perchards/MS2 undertook this analysis for both 2007 and the new 2012 Harmonized Tariff Item Statistical Codes. The report distinguishes between the 2007 and 2012 codes with a prefix of either SC07 or SC12 before the ten digit code.

The analysis was also carried out for the higher level eight digit Customs Tariff Code Number (denoted by CTCN) to consider whether higher level codes would be appropriate where there is insufficient data to develop conversion factors for the HTISCs.

Incoming datasets from participating brands were entered into a purposely designed Excel model to produce a number of statistics, charts and analyses for each HTISC. These include:

- frequency distribution chart for individual item weights
- frequency distribution chart for number of items imported
- chart comparing brand and average weighted mean weights
- number of ABS imports and % coverage by sample
- maximum and minimum item weights
- standard deviation
- two measures of average: weighted mean and weighted median
- two measures of confidence: one for each measure of average
- the proposed conversion factor
- an indication of the validity over time
- a sensitivity analysis
- an assessment of the impact of applying factors for all codes

Note that the analysis refers to the ‘conversion factor year’. This is the year of import data used to develop the factor. For most codes this year was 2010-11. In some cases no unit/weight information was available for 2010-11 and so previous years were used as indicated.

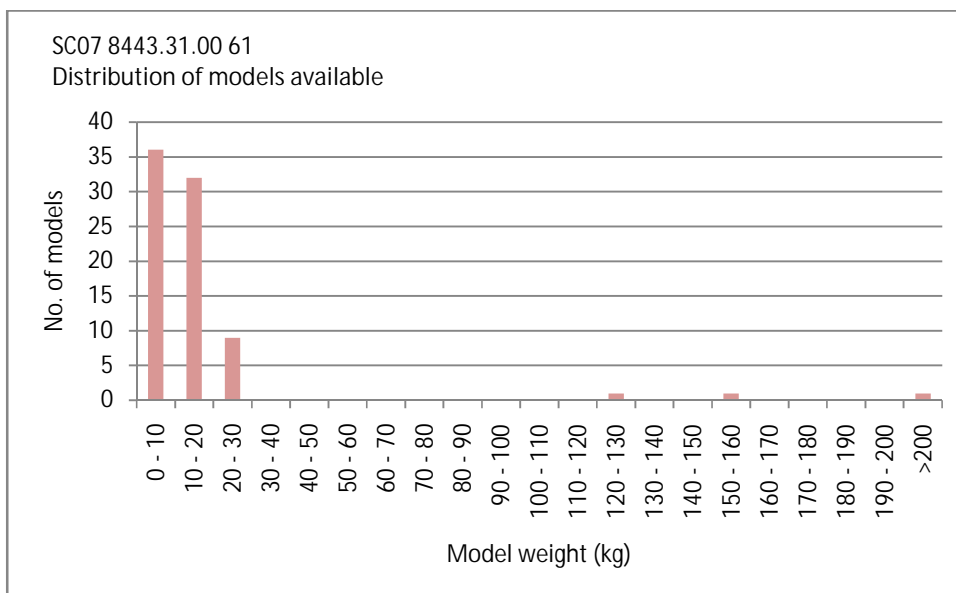
The relevance of each of these is described below in the context of SC07 8443.31.00 61 Multi-function devices (MFDs) – ink-jet.

Models Available – frequency distribution chart

Frequency distributions help to visualise the distribution of weights within each code.

The ‘Distribution of models available’ charts assign all models available under the code to one of twenty weight groups; they do not take into account the number of units imported.

Figure 8-1 Example chart showing the distribution of models available



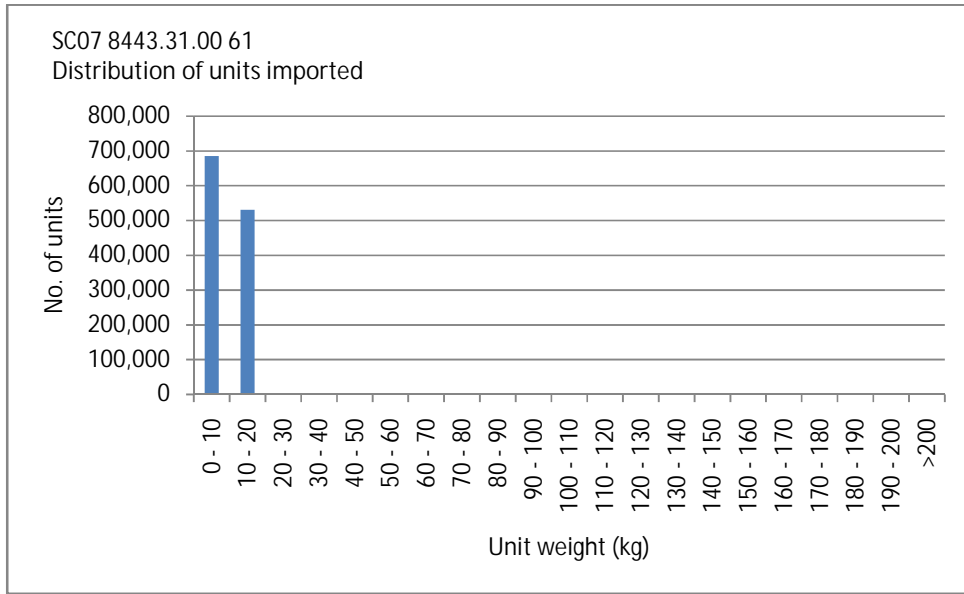
As shown above, within MFDs – ink jet, most models available under the code are between 0 and 30 kg, with a very small number of models weighing more than 100 kg.

Units Imported – frequency distribution chart

The ‘Distribution of units imported’ charts show the total units imported according to the same weight groups as the ‘Distribution of models available’. Generally, both charts follow a similar pattern. Where a weight group shows that models are available in the ‘Distribution of models available’ chart but does not show any units as being imported, it means that none of those models were imported in the year on which the conversion factor is based.

Note that the ‘Distribution of models available’ chart shows the models available in any year. The ‘Distribution of units imported’ chart shows the units imported only in the year for which the conversion factor is derived.

Figure 8-2 Example chart showing the distribution of units imported



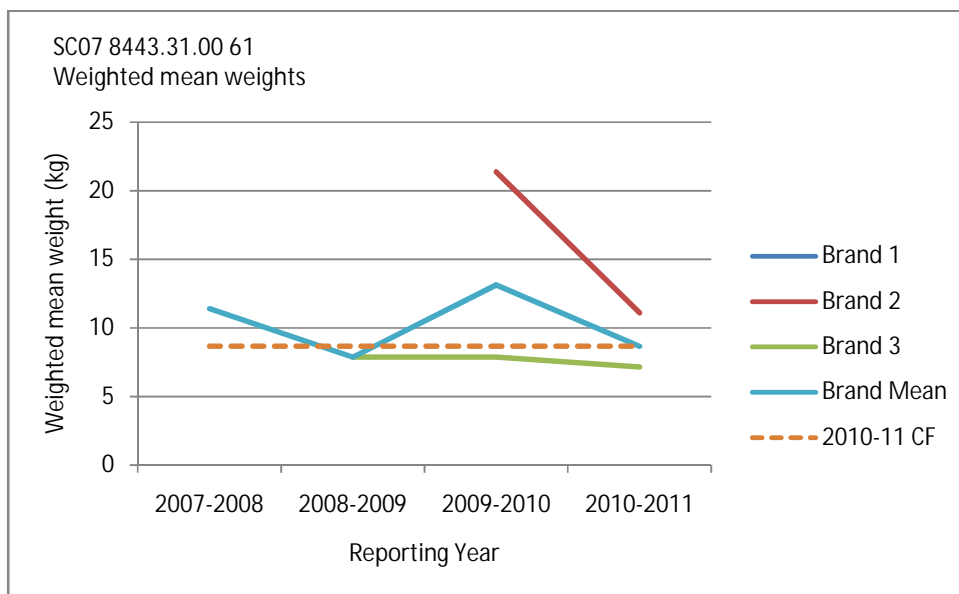
Most units imported under SC07 8443.31.00 61 are between 0 and 20 kg, with three units imported over 100 kg.

Chart comparing weighted mean weights

This chart shows the variation of weighted mean weights for each brand reporting under the code. They present weighted mean weights for individual brands, the average weighted mean weight across all brands, the average weighted mean weight for the conversion factor year which is as a constant, projected across all years.

This assists with visualising how representative the average weighted mean weight is across all brands: where one brand may be over or under represented. It also provides an indication of validity of the weighted mean over time – the assumption being that an equivalent level of variation of brand weighted means from the conversion factor within the previous three years would be observed in the following three years.

Figure 8-3 Example chart comparing weighted mean weights of participating brands and overall



Number of ABS imports and percentage coverage by sample

These statistics provide an indication of robustness. For each code, the total number of units imported is known via ABS data. The number of units imported that are included in the exercise is summed across all brands (who import under that code) and coverage in the exercise is expressed as a percentage of the total number of ABS imports (referred to as *% of ABS imports captured*).

Note that in some cases the percentage of ABS imports exceeds the number of ABS imports. This is thought to be due to reporting inconsistencies noted above. This limits the applicability of this method as an indication of robustness as over-reporting against one code invariably means under-reporting against another. In instances where the percentage of ABS imports exceeds the number of ABS imports it is considered more appropriate to apply the conversion factor methodology at the CTCN level rather than HTSIC level.

Maximum and minimum item weights

Maximum and minimum weights help to understand the spread of the data, although the centre point of the maximum and minimum values is not necessarily the most typical value of the data. The 'Distribution of units imported' chart demonstrates that the maximum value is an outlier, and that most of the items imported under SC07 8443.31.00 61 fall between 0 and 20 kg.

In the case of SC07 8443.31.00 61, the minimum value is 3.6 kg and the maximum is 250.2 kg.

Two measures of average

The average of a data set refers to a typical value of the data. The purpose of this conversion factors exercise is to derive a typical value for each HTSIC.

The most common measure of average is the *mean* and is the statistic that forms the conversion factors. The mean is calculated as the sum of all weight imported divided by the number of units imported. The mean is influenced by outliers. In the case of SC07 8443.31.00 61, the mean is 8.7 kg and incorporates the three outliers seen in the 'Distribution of units imported' charts.

Another form of average is the *median*, the middle data point. Median averages are not skewed by outliers at either end of the distribution. Median values have been calculated to benchmark against the mean values and to assist with developing confidence intervals.

Standard deviation

Standard deviation, expressed in the same unit as the data, is a measure of variation of the data if the centre point of the data is the mean. A low standard deviation indicates a low degree of variation around the mean, whereas a large standard deviation indicates a large degree of 'dispersion'. Standard deviation is used to develop confidence intervals.

Two measures of confidence

A common way to express confidence is in terms of confidence intervals. Confidence intervals are calculated at a specified level of confidence, based on the number of standard deviations away from the mean in which the specified proportion of the data lie. For normally distributed data sets, 95% of the data lie within two standard deviations from the mean.

This method of expressing confidence ratings is referred to in the report as *approximation to the normal distribution (ATN)*. In the case of SC07 8443.31.00 61, at the 95% confidence level, the confidence interval is expressed as 8.7 kg \pm 0.4kg, where 8.7 kg is the mean and 0.4 kg is the threshold on either side calculated by the standard deviation. Put another way, if a value is selected from the data set at random, one can be 95% sure that it will lie between 8.3 and 9.1 kg.

HOWEVER, referencing back to the 'Distribution of units imported' chart, it is obvious that 95% of the data DO NOT lie between 8.2 and 9.1 kg. This is because the data set is not normal; therefore using this approach to calculate confidence intervals is not necessarily applicable.

An alternative method to derive confidence intervals is to calculate the two thresholds containing 95% of the data set. The thresholds are calculated at given percentiles: 95% of the population is contained within the 2.5 percentile and the 97.5 percentile. This time, a midpoint is not necessary, although the average calculated by the same method would be the weight at the 50 percentile, i.e. median, as opposed to the mean.

This method tends to result in a wider confidence interval simply because in most cases the data is spread, or skewed more than a theoretical bell curve. In most cases the confidence intervals will not be symmetrical on either side of the mean, as they are based on a real data set which in turn is not symmetrical. Typically the greatest of the upper threshold minus the median, or the median minus the lower threshold would be used as the confidence interval. Note that again the applicability of this method can be questioned, as particularly dispersed data sets will yield very wide confidence intervals, and using the greatest interval from the median can result in minus thresholds.

This method of expressing confidence ratings is referred to in the report as *use of percentiles (UOP)*. In the case of SC07 8443.31.00 61, the confidence limits at the 95% the confidence level are 3.6 kg and 16.15 kg. Accordingly, one can be certain 95% of the data set falls between 3.6 kg and 16.15 kg.

The proposed conversion factor

Following a brief comment about the nature of the distribution of the data set, the most applicable conversion factor (weighted mean or median, and the confidence rating associated with the average) is proposed.

In the case of SC07 8443.31.00 61, the mean value of 8.2 kg is proposed. While the distribution is dispersed due to the outliers, the mean is contained within the majority of the dataset, and given the narrow dispersion of the majority of the dataset, the confidence intervals calculated via the ATN are considered appropriate.

An indication of the validity over time

An indication of validity over time can be determined to the extent to which the conversion factor varies from the weighted mean weight for other years.

This variation can be seen from the conversion 'Weighted mean weights' chart, i.e. the position of the conversion factor line relative to annual average weighted mean weights and annual brands' average weighted mean weights. Naturally these weights vary over time.

Conversion factors which are more valid over time will have a low variation over time. Conversion factors which are less valid over time will have a high variation over time.

The variation can be determined by the percentage of *actual weight imported* that is over or understated by *calculated weight imported* (by the conversion factors).

In the conversion factor year, this percentage is 0%, as the conversion factors are based on that years data. If this percentage is 0% in the previous years it means the weighted average weight of the conversion factor has not changed.

Where the percentage is *greater than 0%* it means that the conversion factor calculates more weight than is actually imported and the conversion factor is too heavy, i.e. the conversion factor is accounting for more than actually existed in that year for that brand.

Conversely if the percentage of actual weight imported calculated by the conversion factor is *less than 0%* it means that the conversion factor is too light, i.e. the factor is accounting for less weight that actually existed in that year.

Variation over time is expressed in terms of a rating: Where this percentage stays at 0% there is not variation over time. A value of $\pm 0-10\%$ is assigned a low variation over time, a value of $\pm 10-20\%$ is assigned a moderate variation over time, and anything beyond $\pm 20\%$ is assigned high variation. Where data is supplied for only one year then the variation over time is not known.

Assessing the impact of applying factors for all codes

The same calculation as used for indication of validity over time is employed. This time it is performed for each brand, for the sum of the weight calculated at each code as a percentage of total weight actually imported.

The closer each brand owners' figure to 100%, the more applicable the conversion factor to the brand. This analysis is documented at the end of the analysis: it is not considered to be representative at HTISC level, as the conversion factors vary between being over- and understating actual weights for different codes, and it is the impact of the factors to the overall imported weight that is relevant to the exercise.

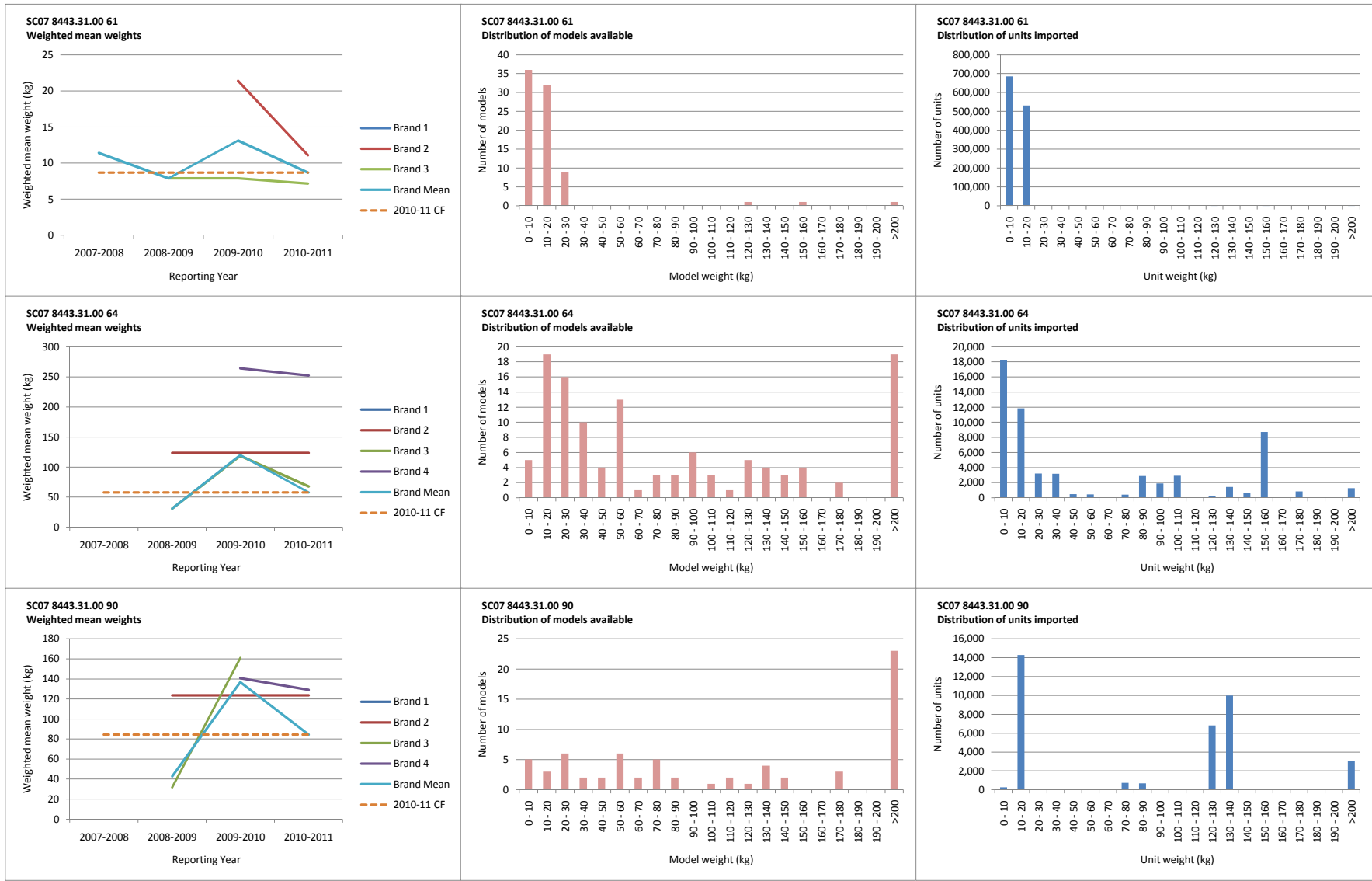
**CARMEL GRIFFITH
RUSS MARTIN
DAVID PERCHARD**

27 Sep 2011

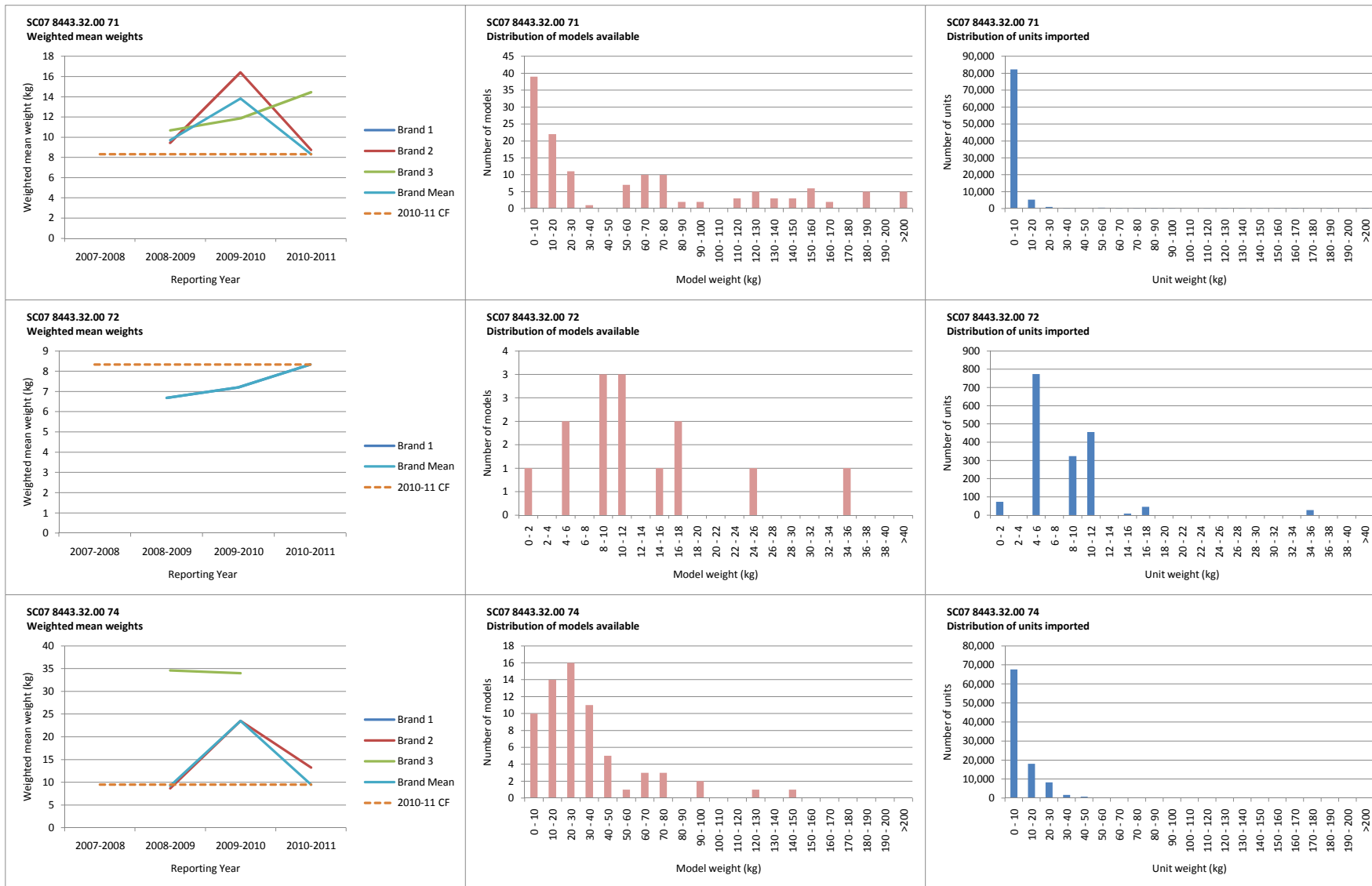
ATTACHMENT A – DATA GATHERING TEMPLATE

ATTACHMENT B – CONVERSION FACTOR CHARTS

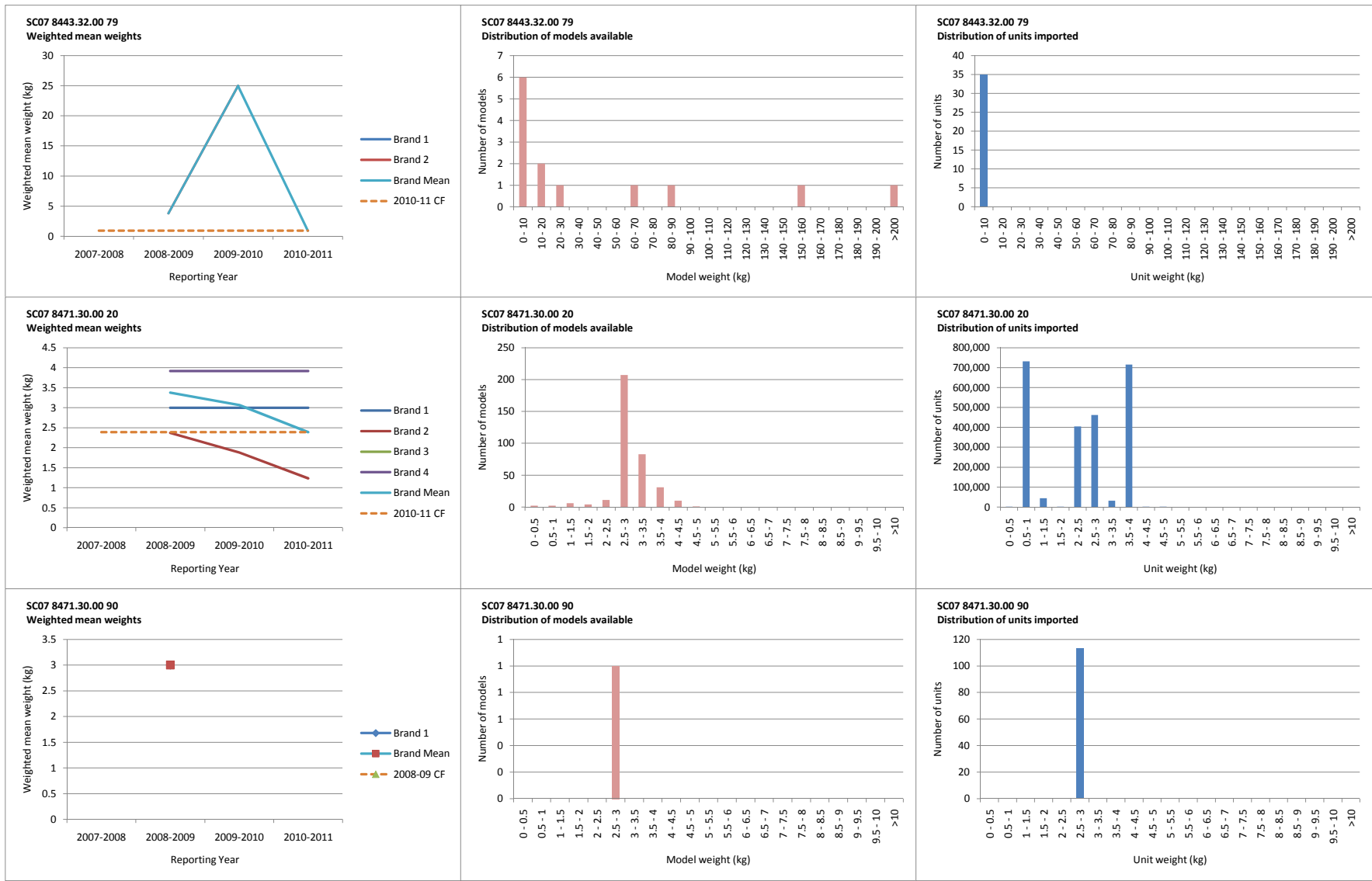
Charts for 2007 HTISC Conversion Factors



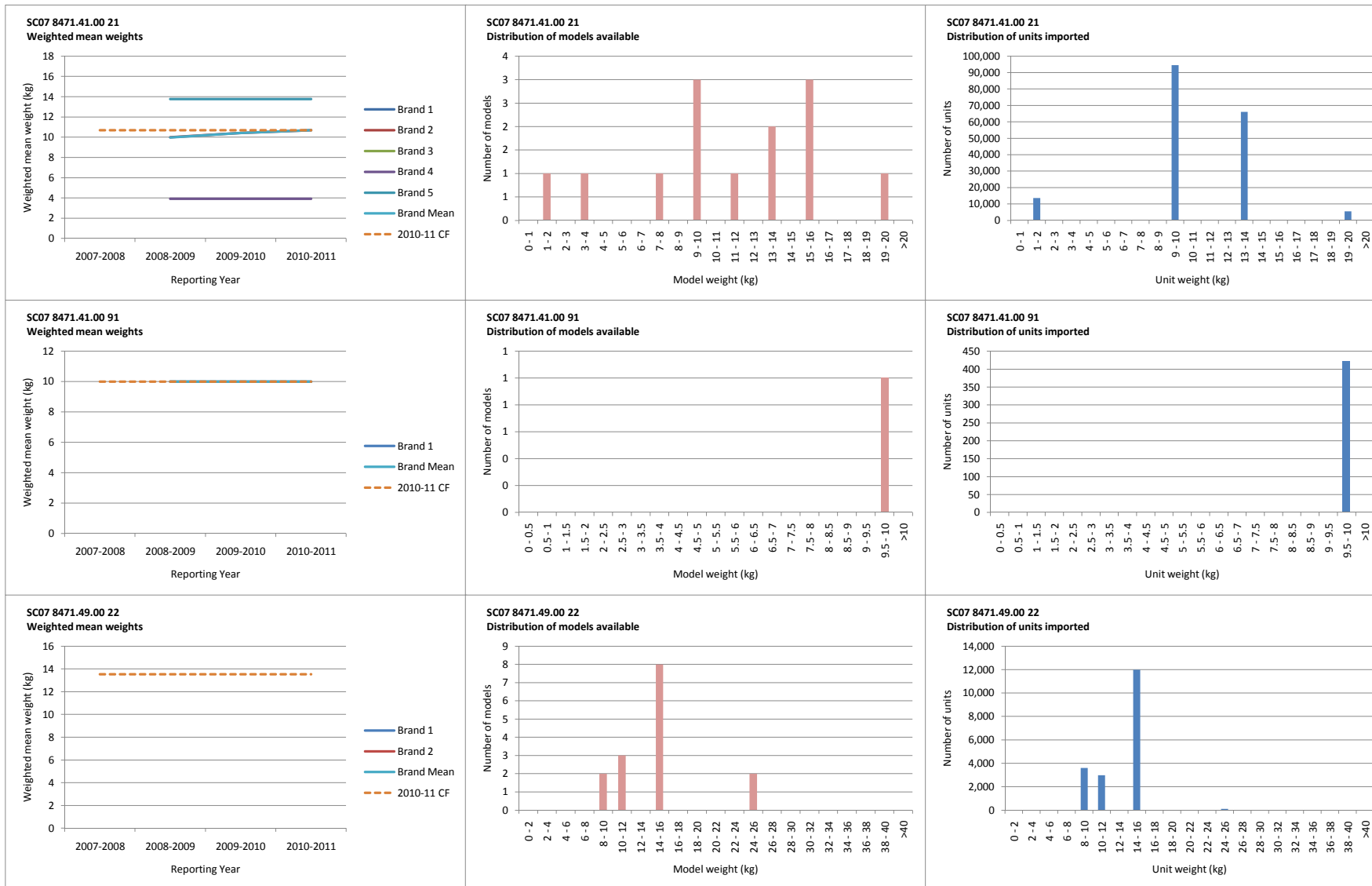
Charts for 2007 HTISC Conversion Factors



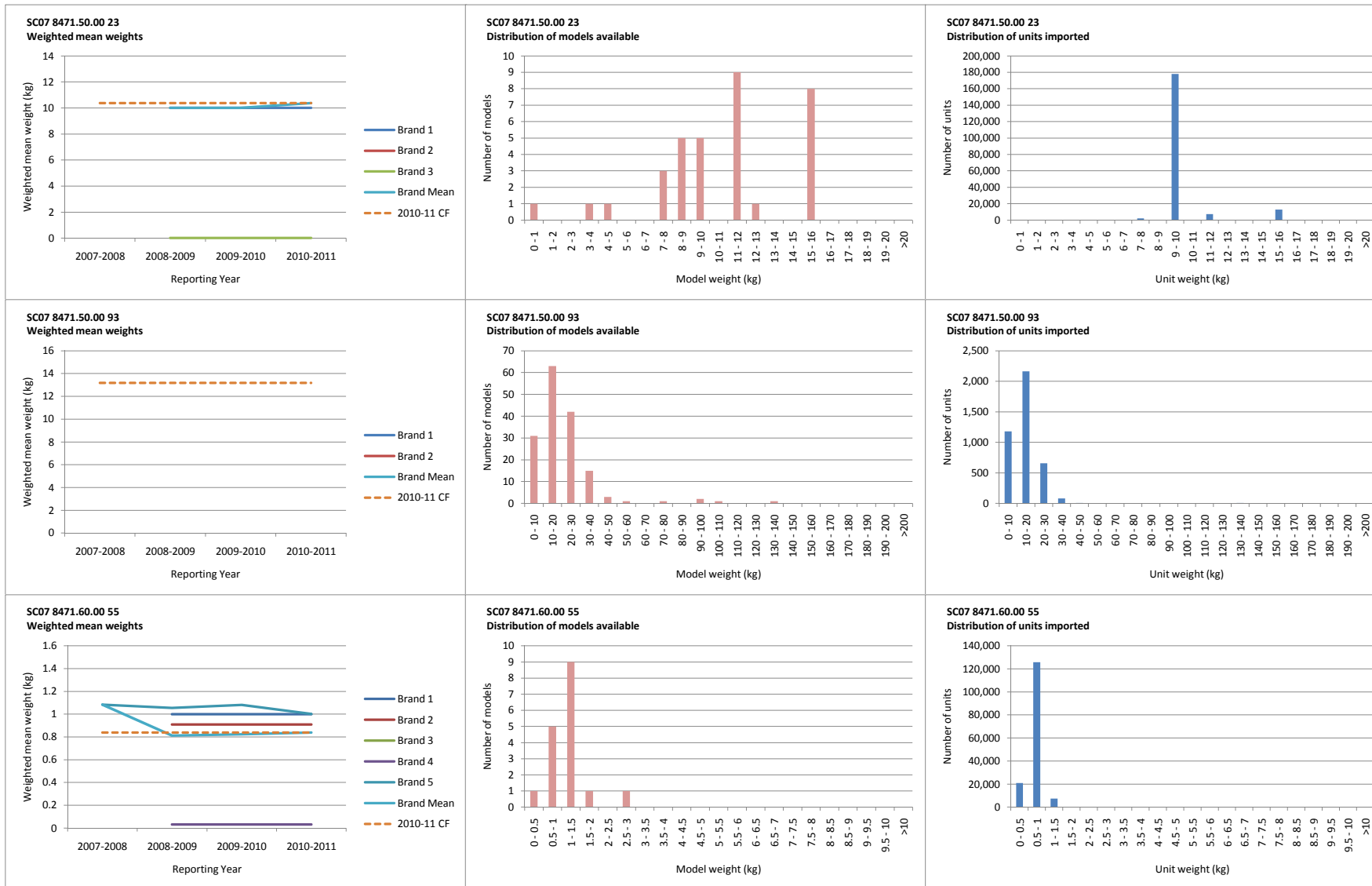
Charts for 2007 HTISC Conversion Factors



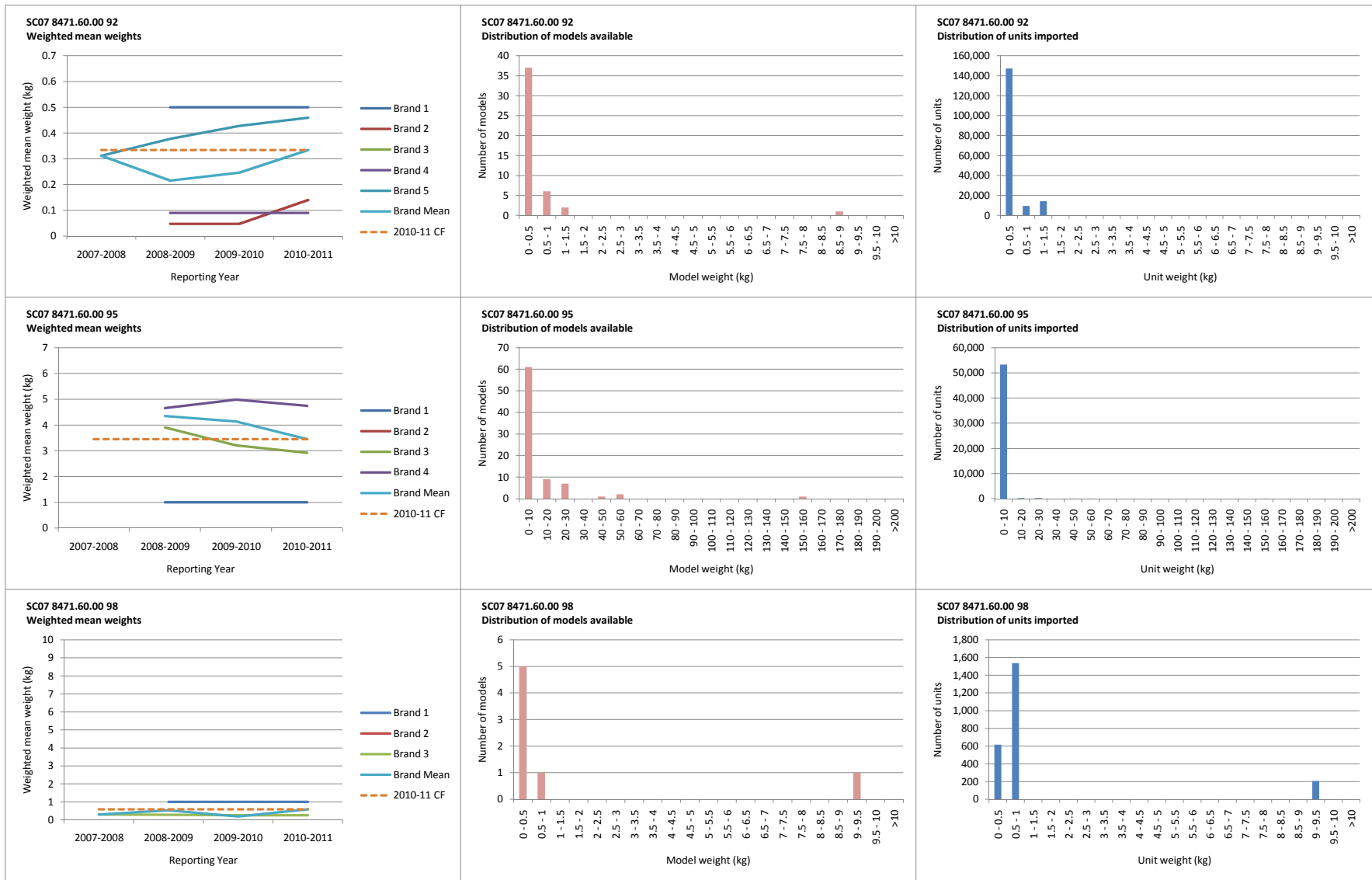
Charts for 2007 HTISC Conversion Factors



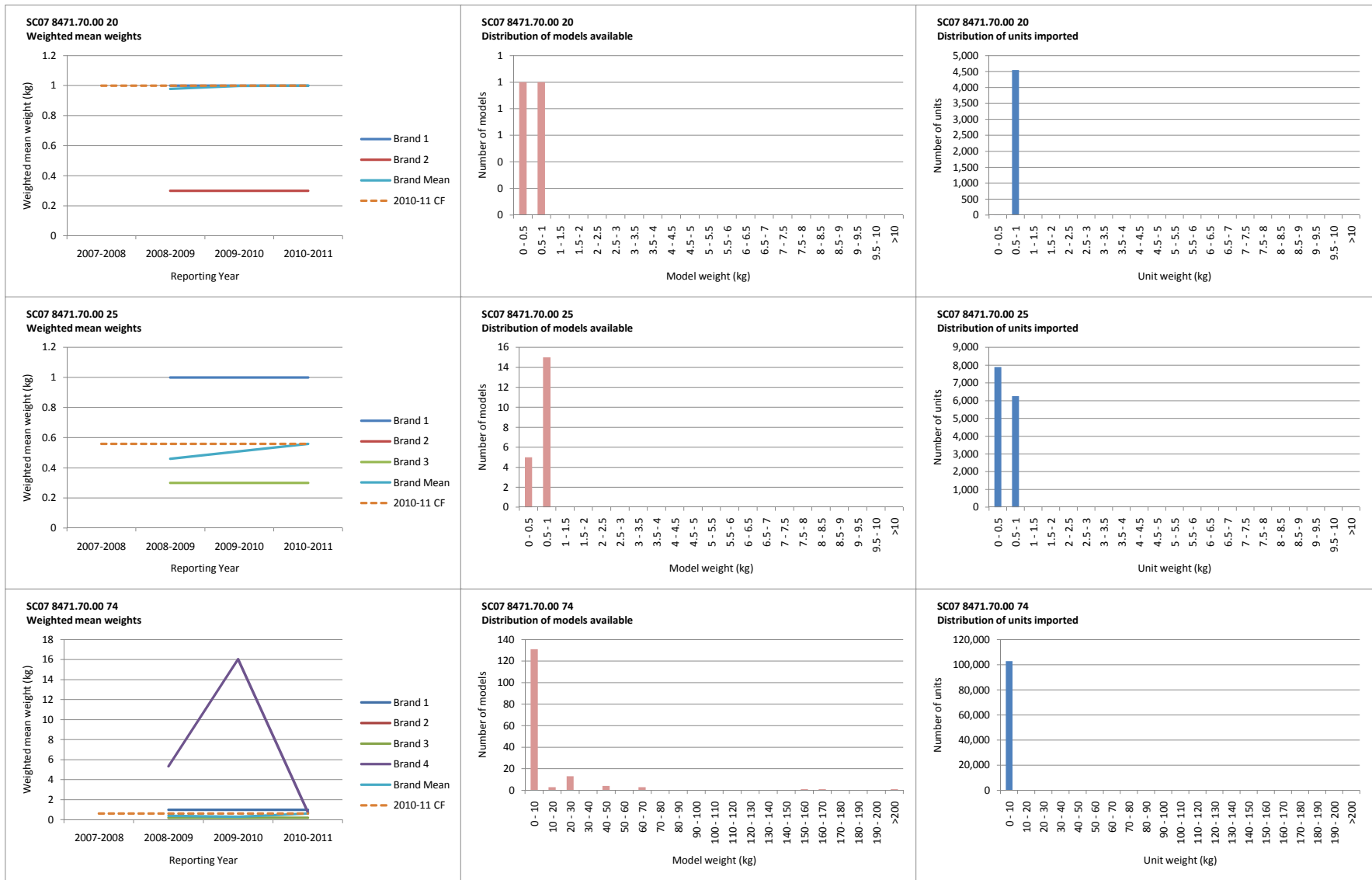
Charts for 2007 HTISC Conversion Factors



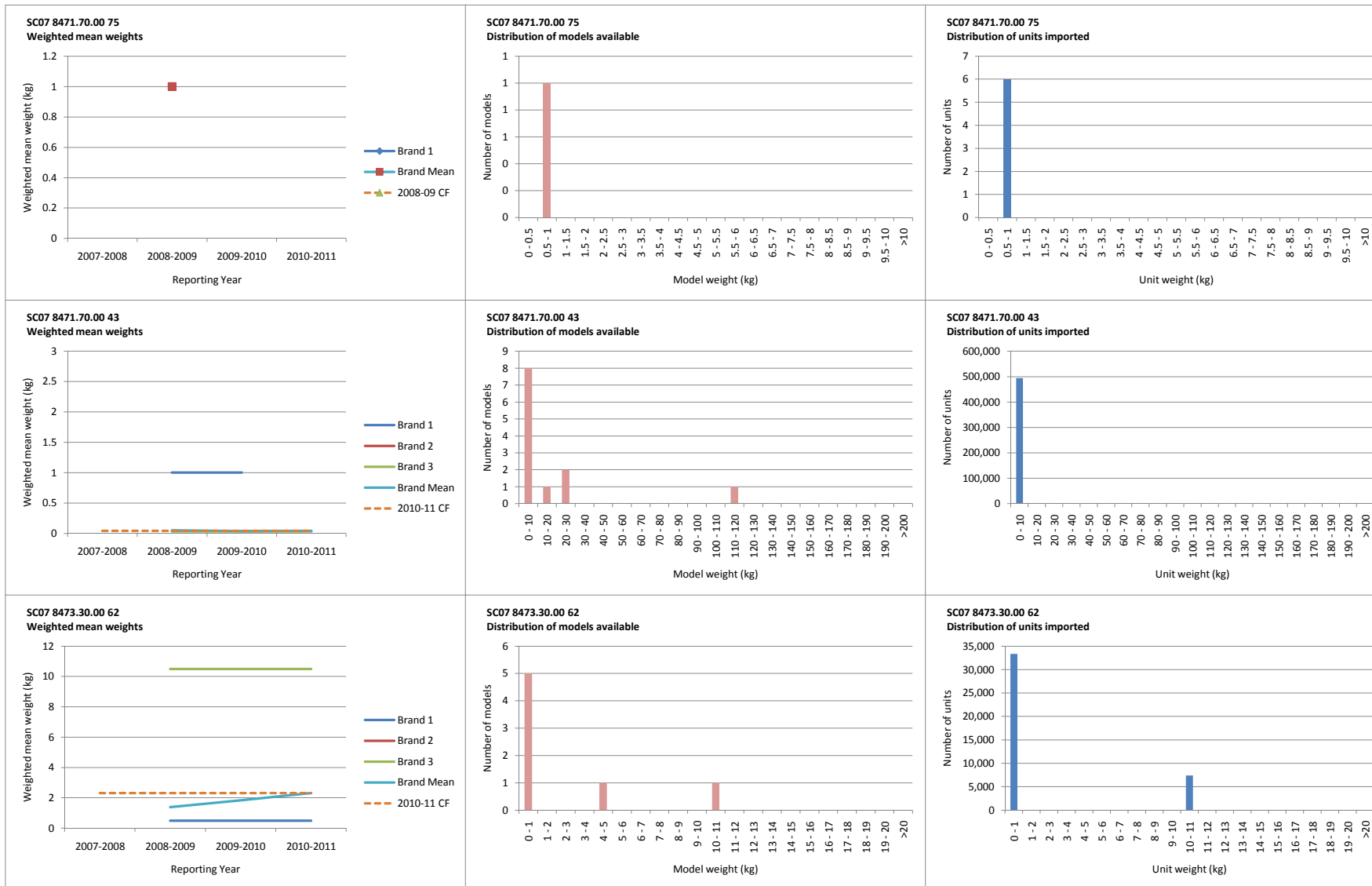
Charts for 2007 HTISC Conversion Factors



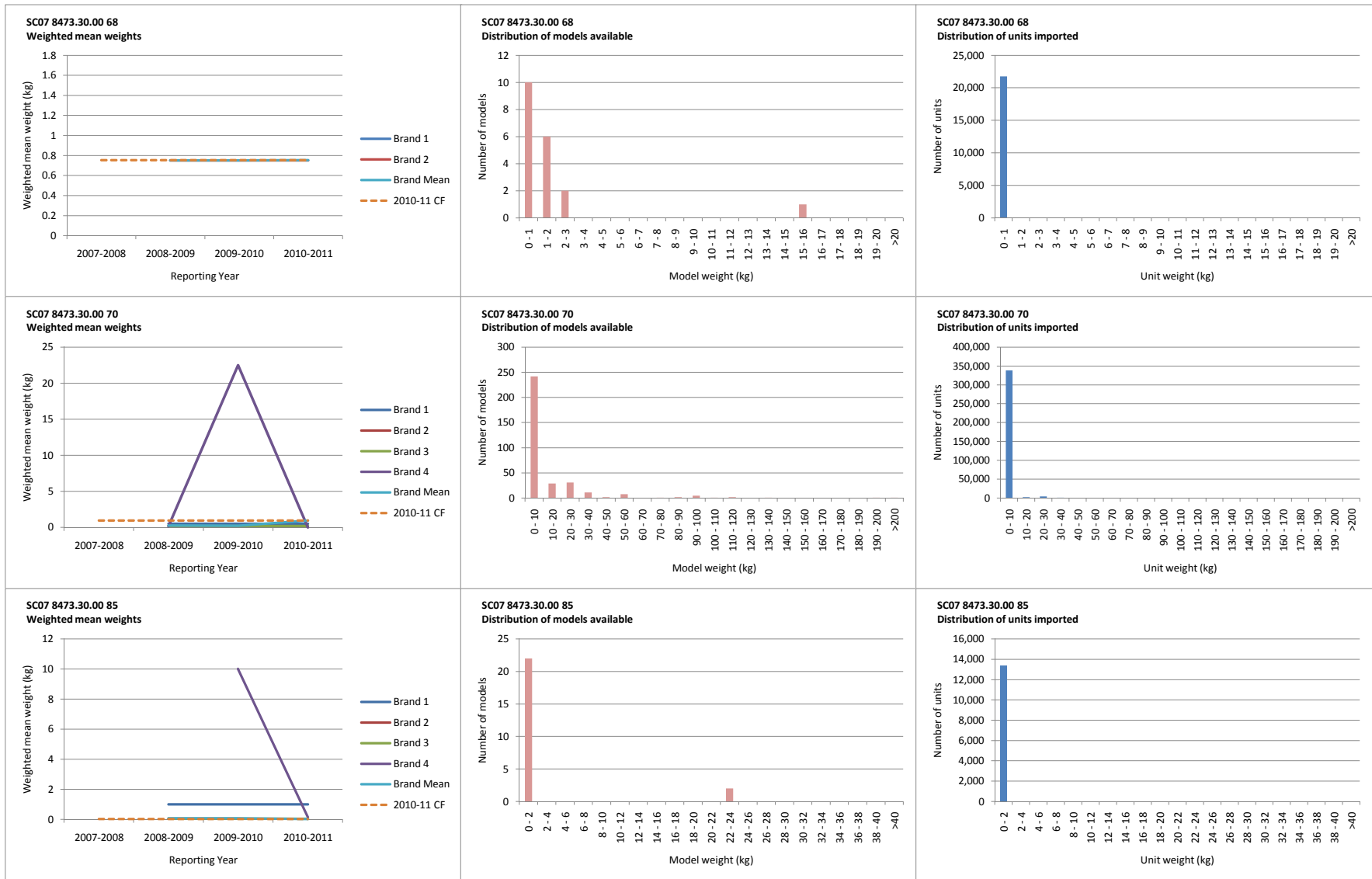
Charts for 2007 HTISC Conversion Factors



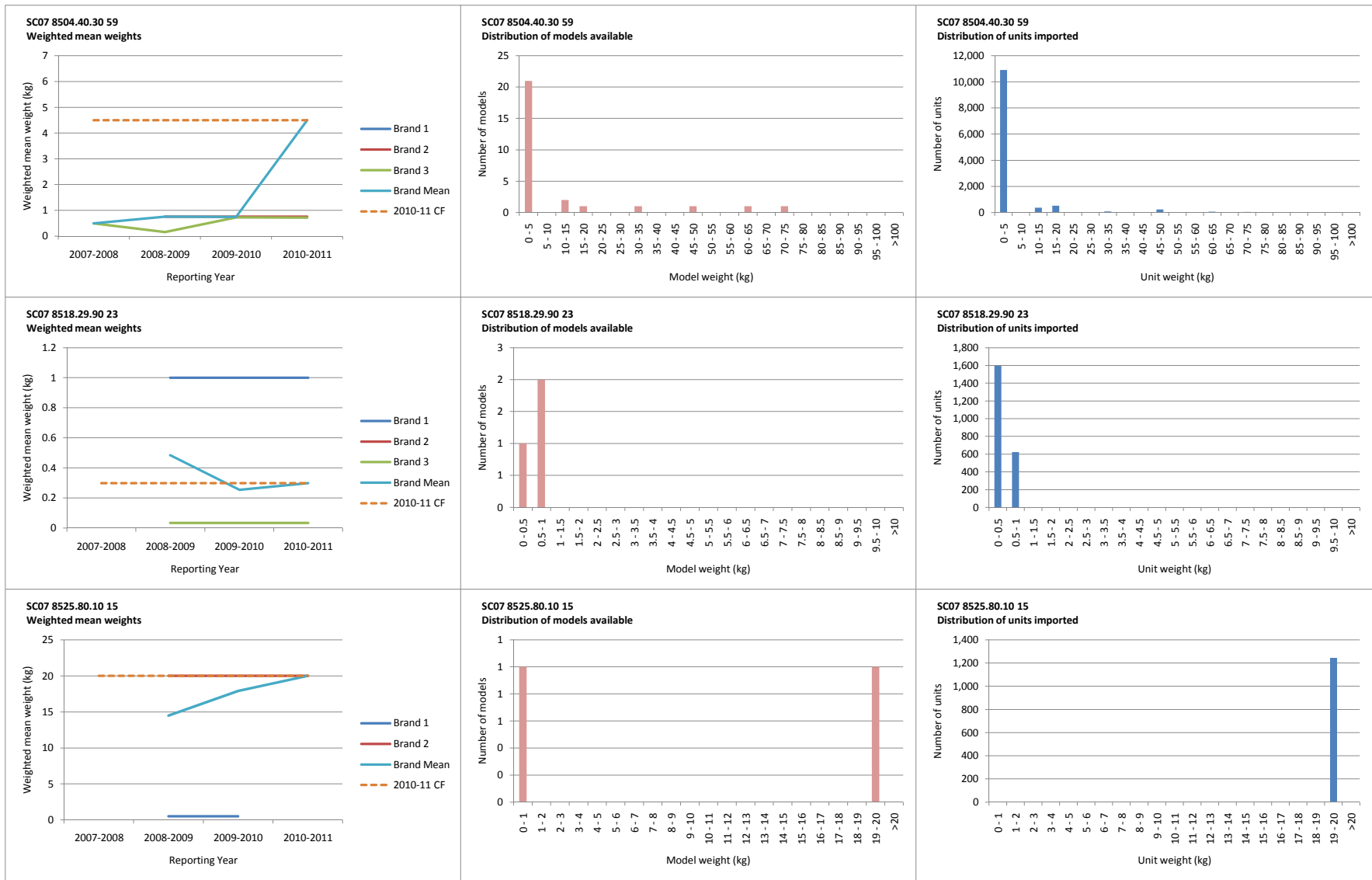
Charts for 2007 HTISC Conversion Factors



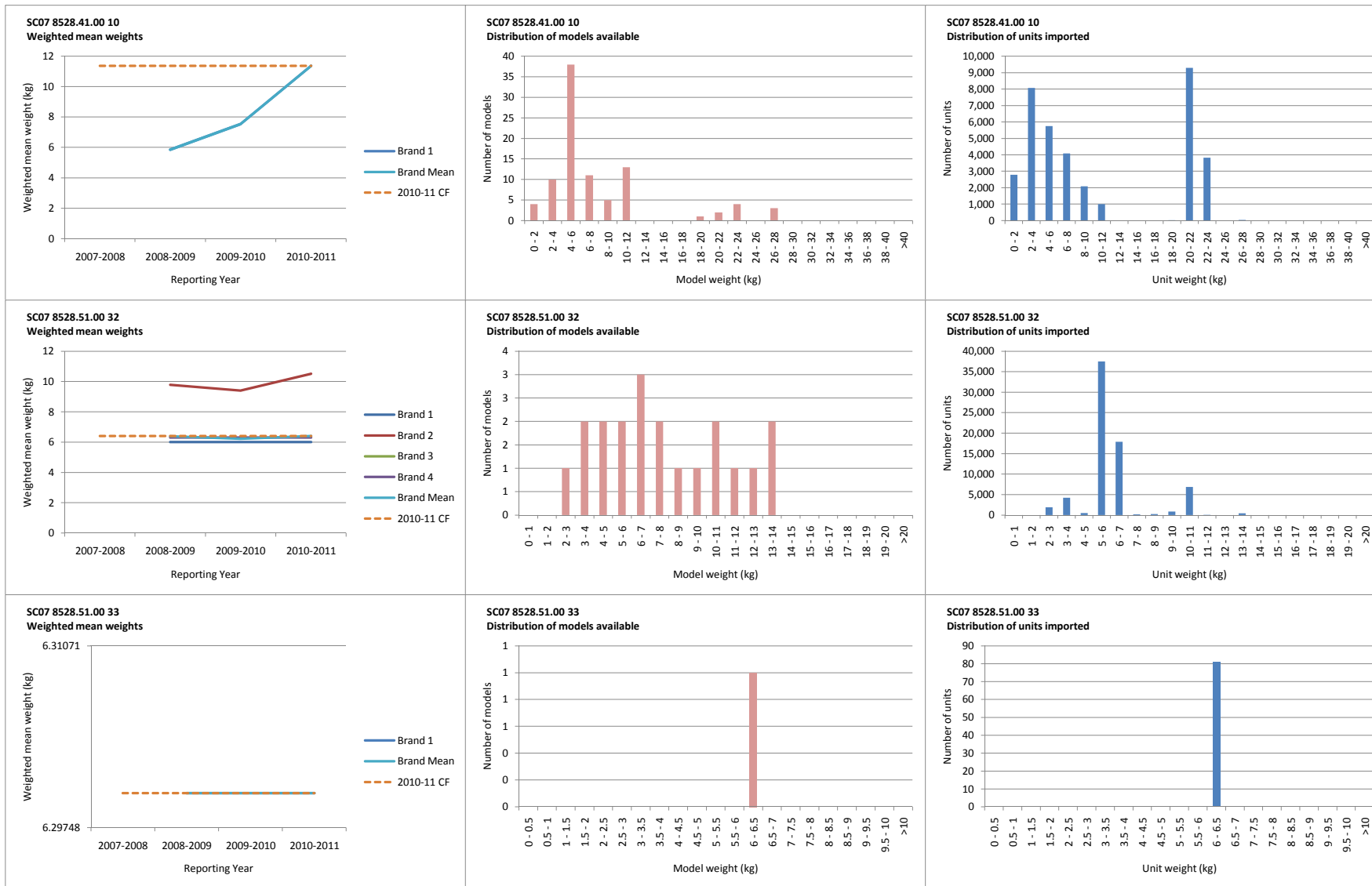
Charts for 2007 HTISC Conversion Factors



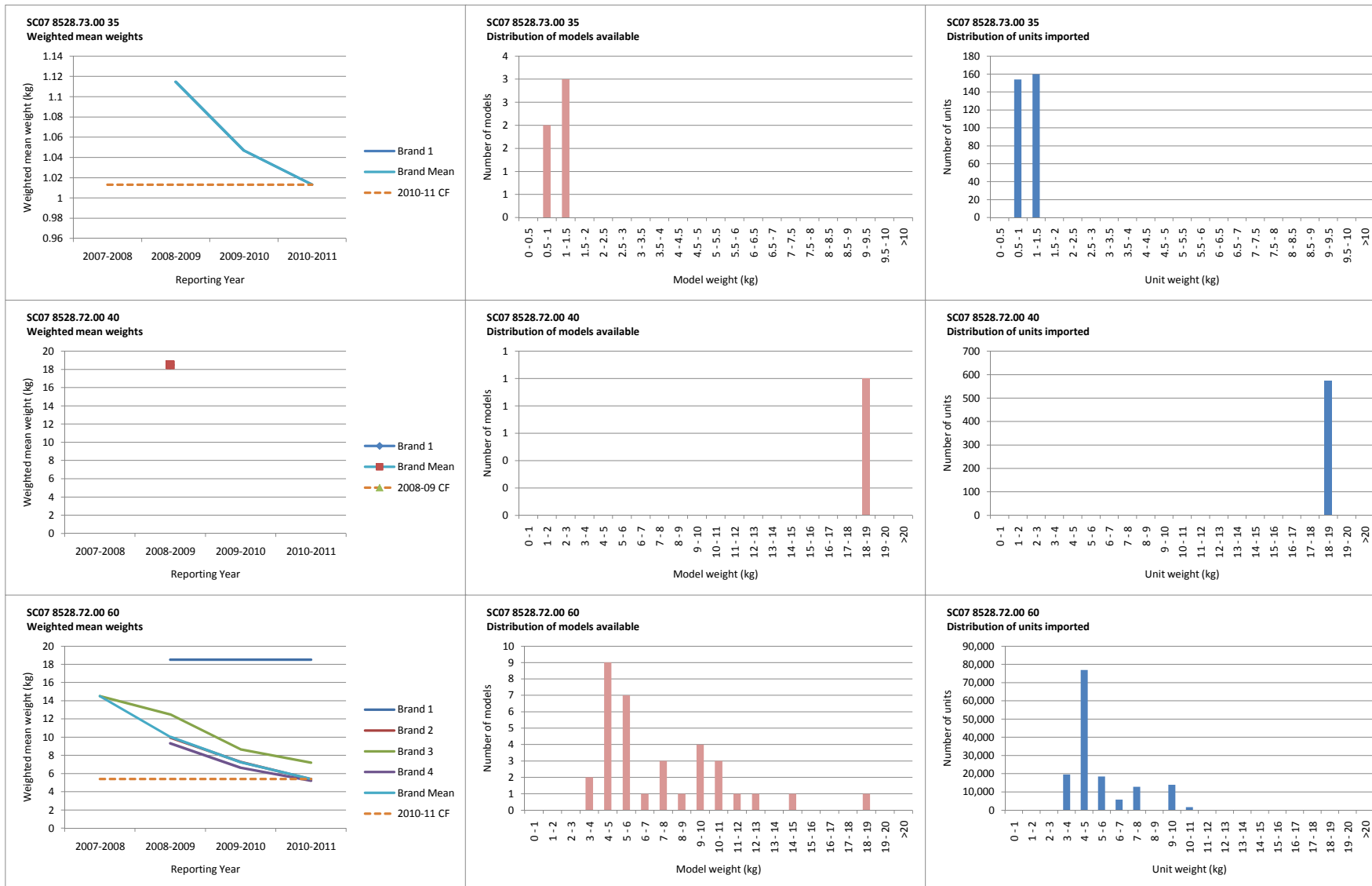
Charts for 2007 HTISC Conversion Factors



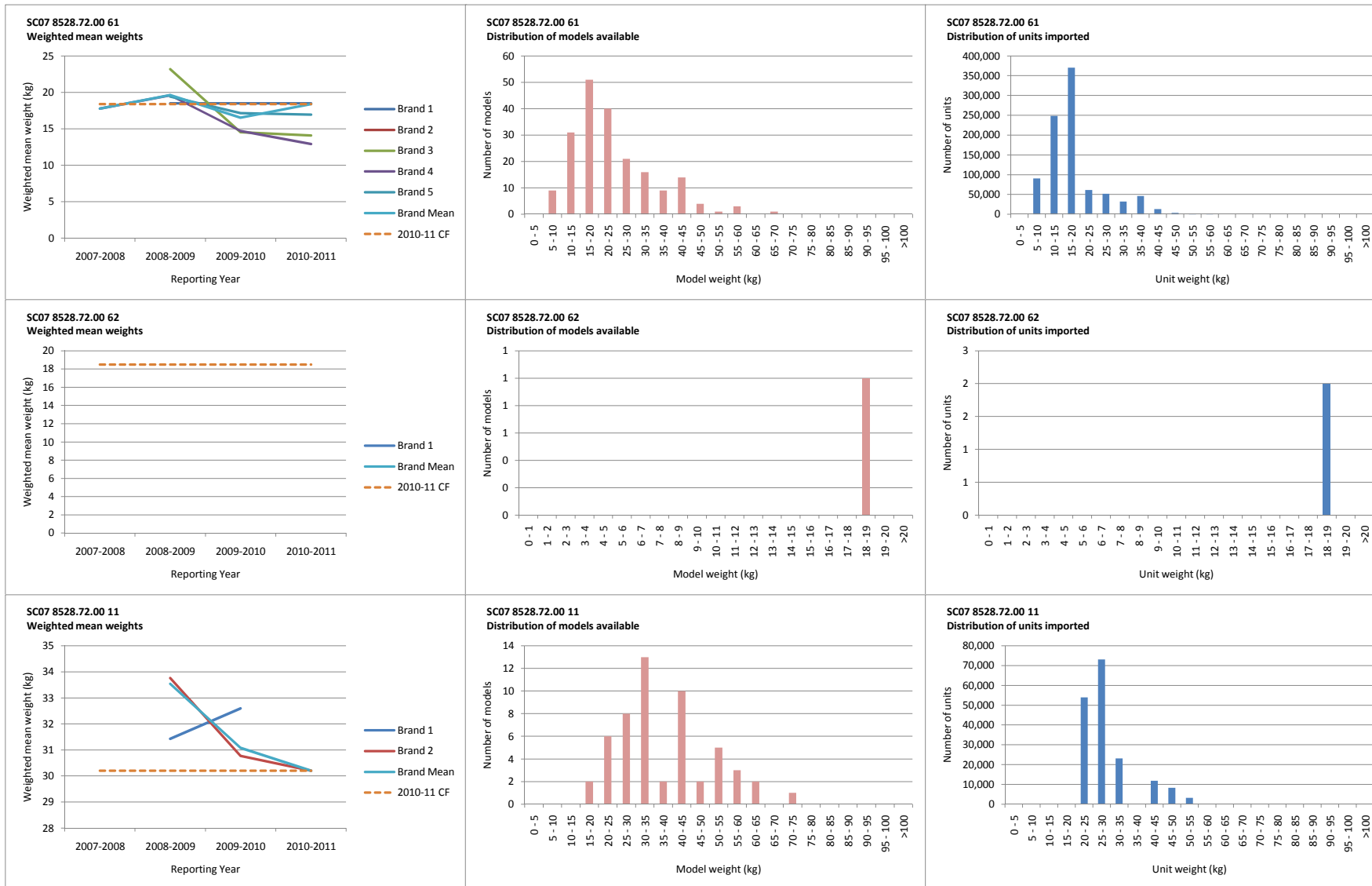
Charts for 2007 HTISC Conversion Factors



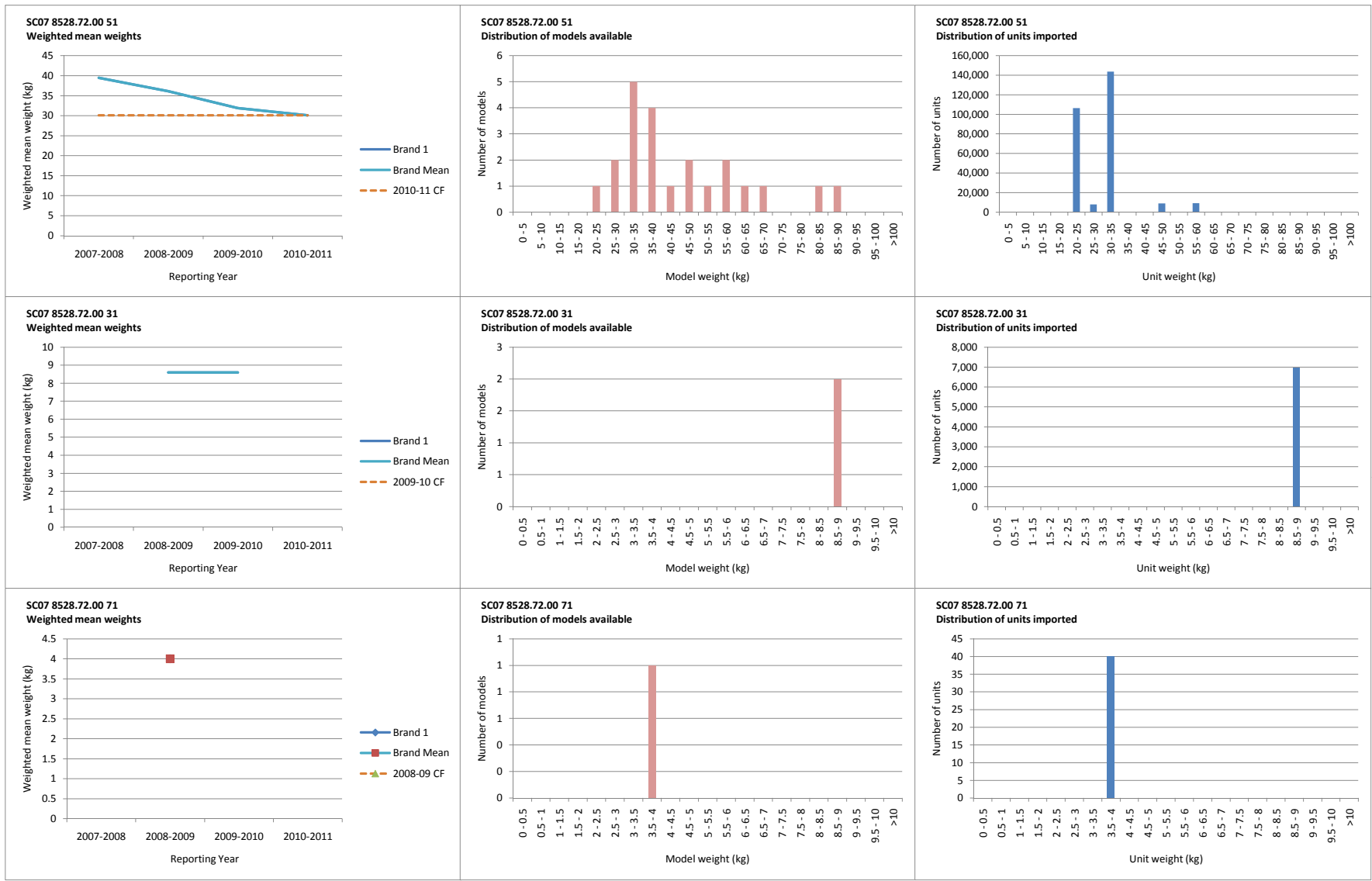
Charts for 2007 HTISC Conversion Factors



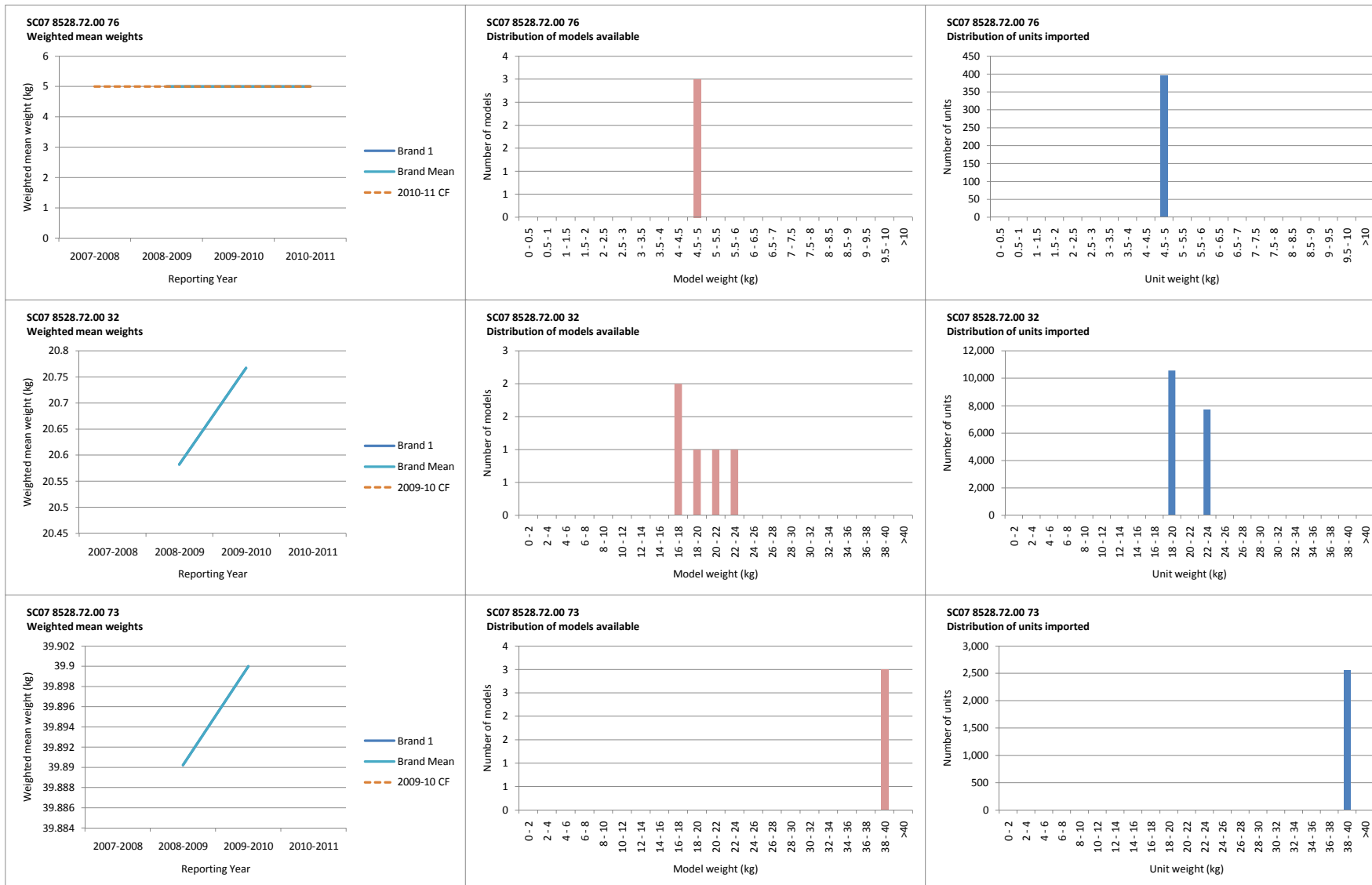
Charts for 2007 HTISC Conversion Factors



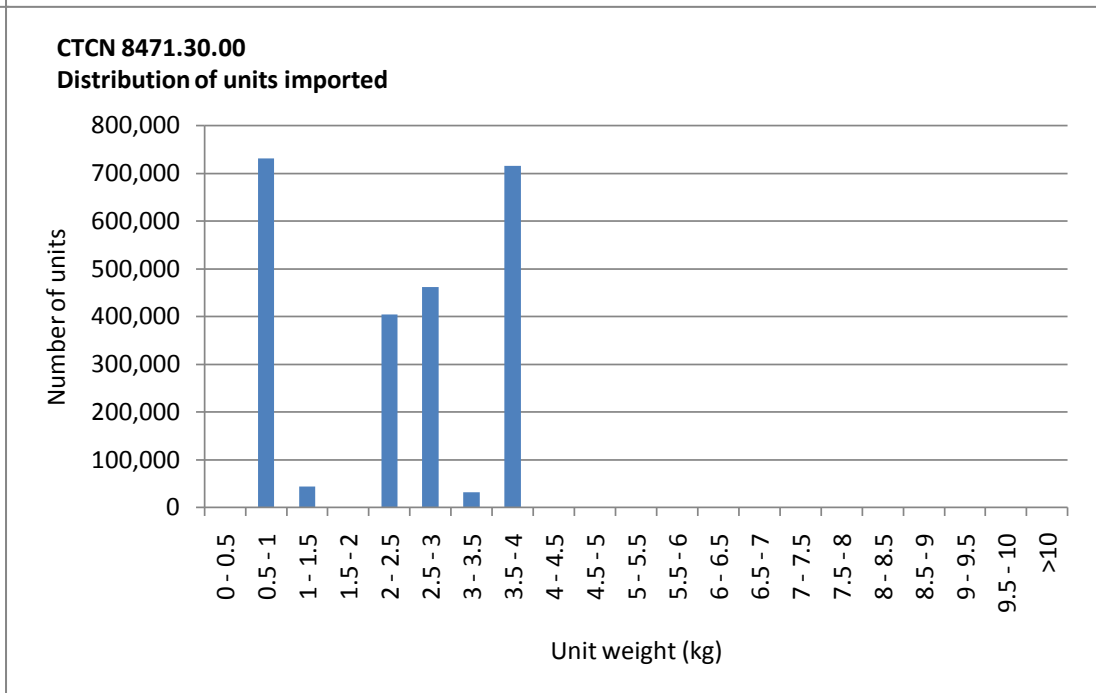
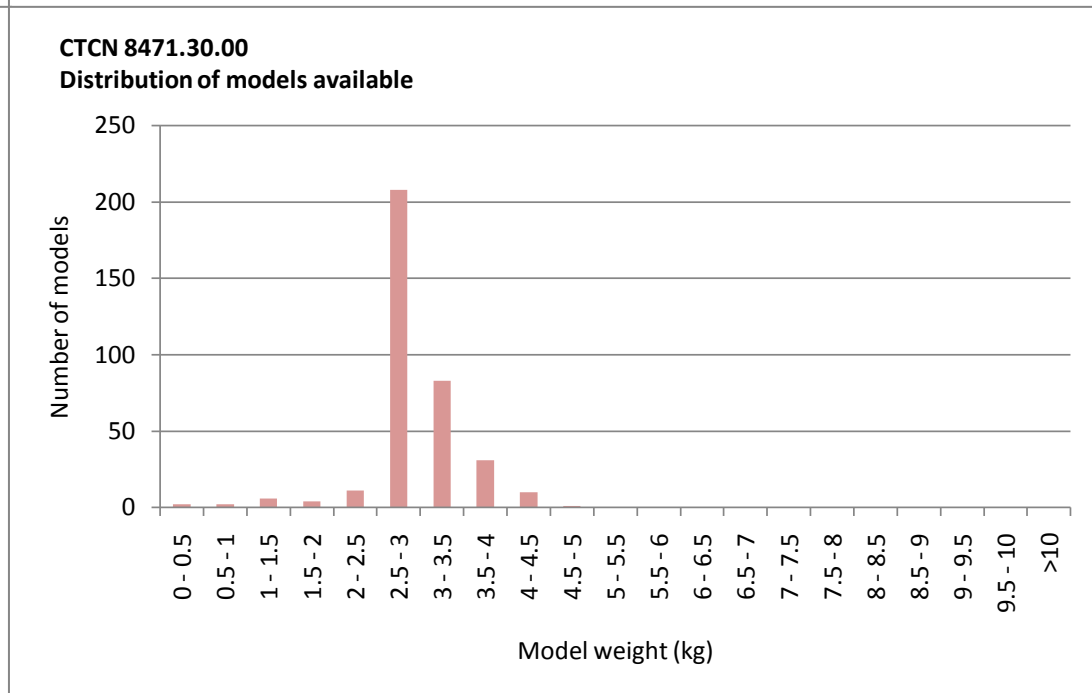
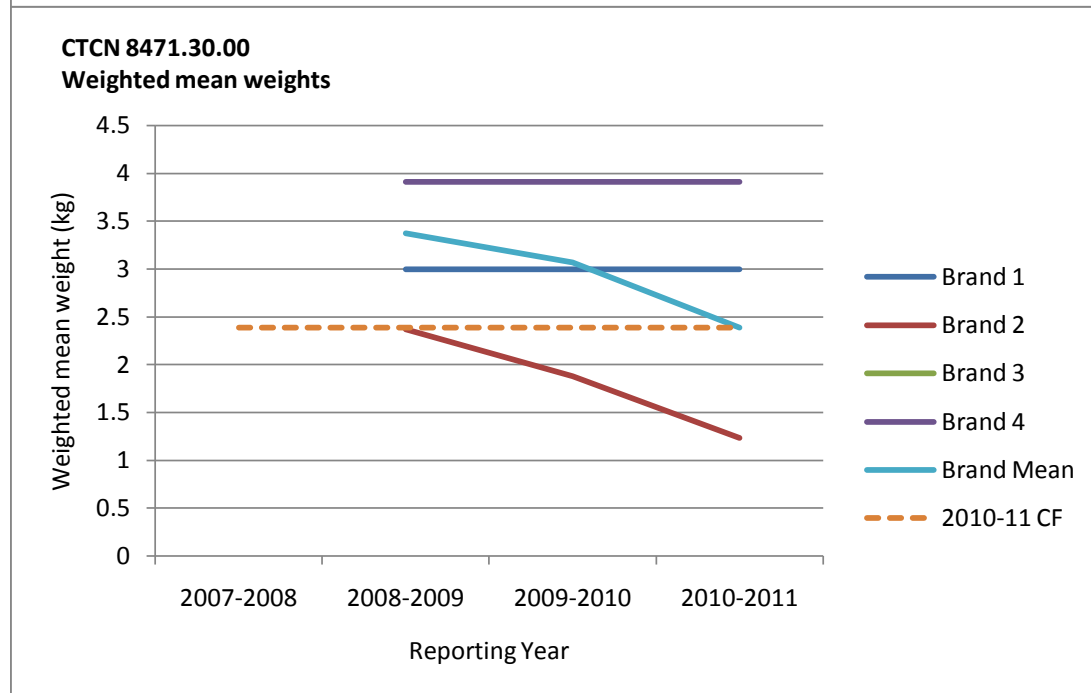
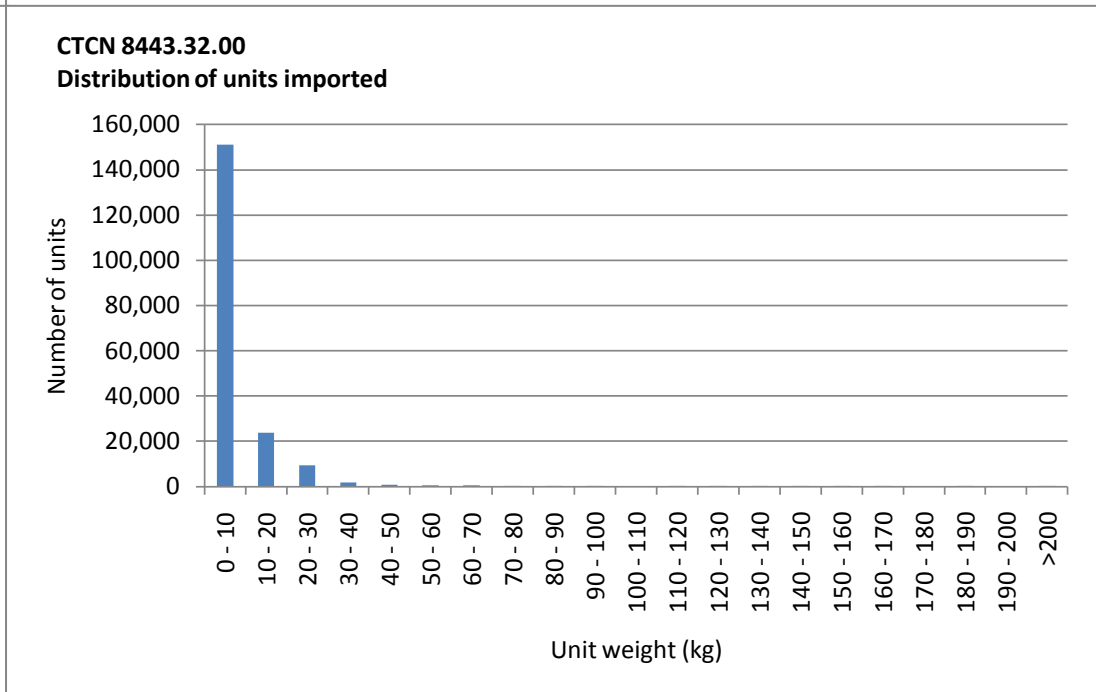
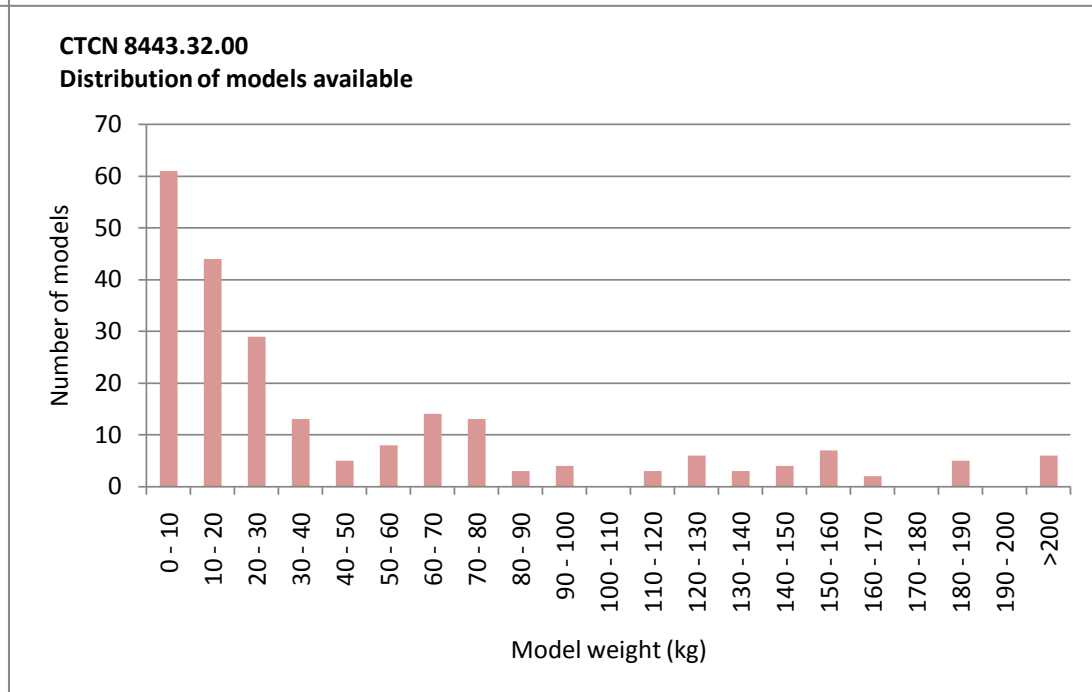
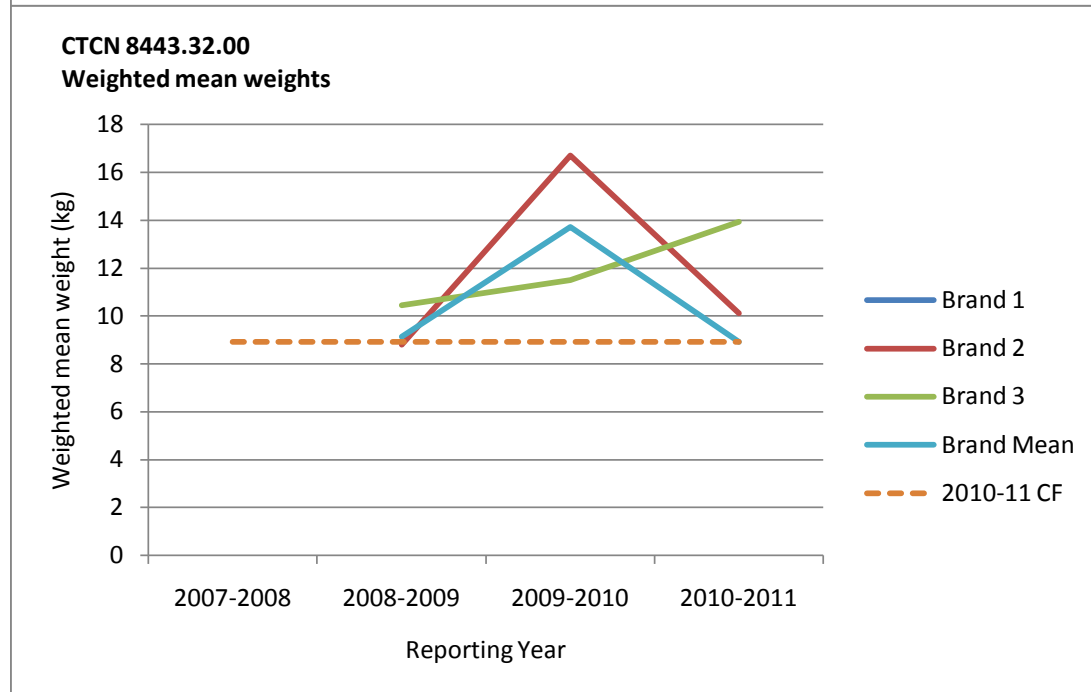
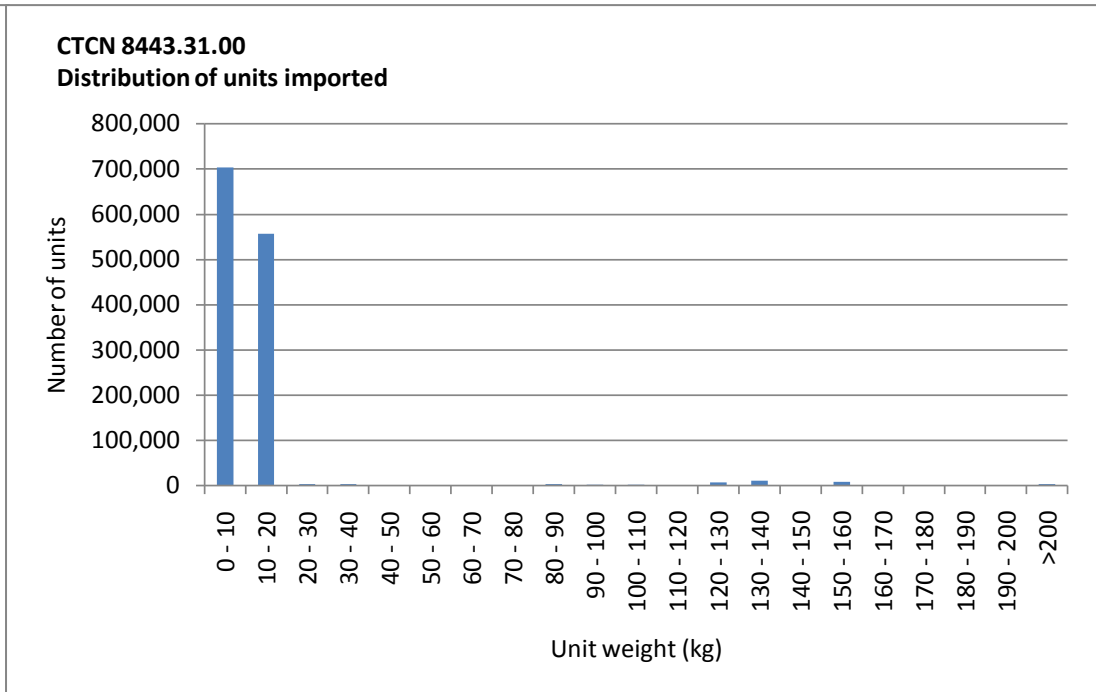
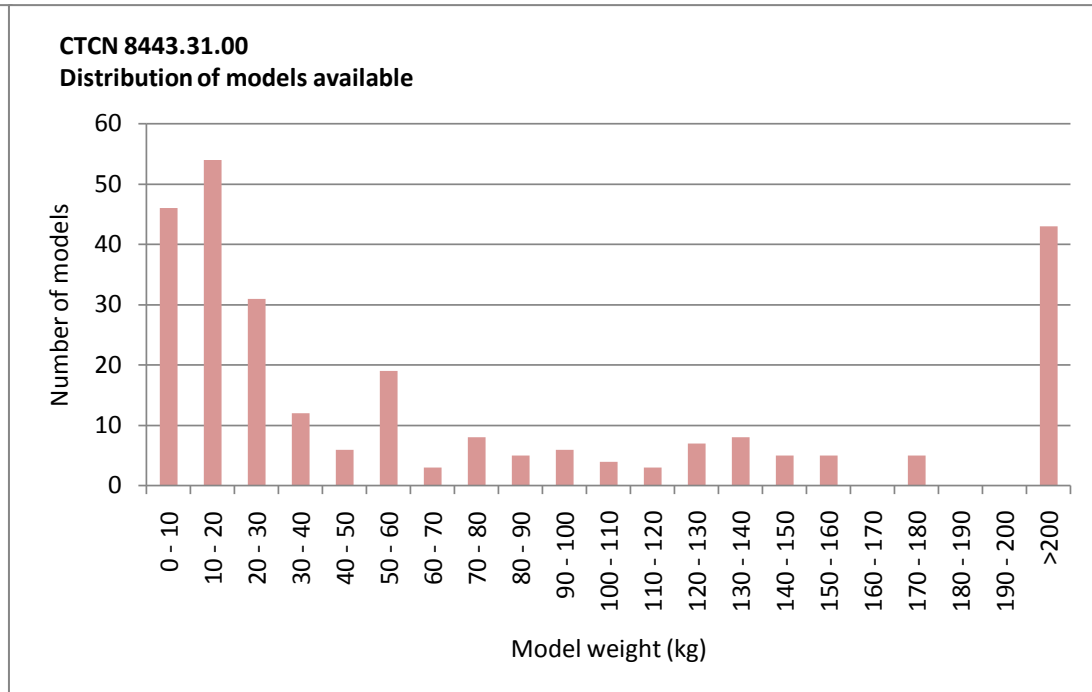
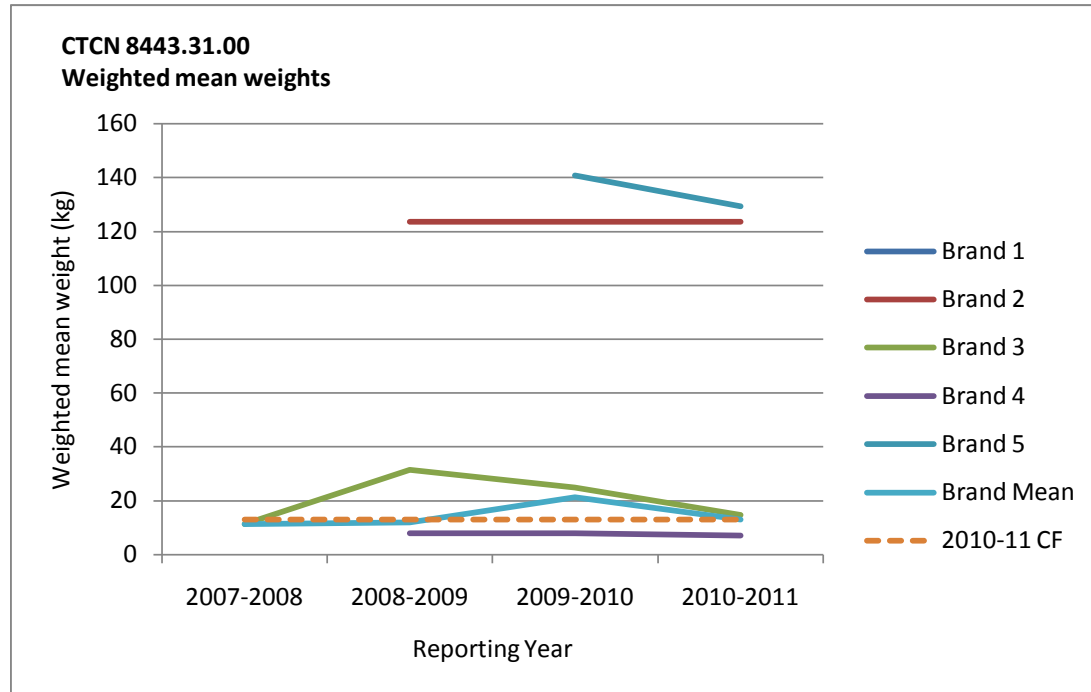
Charts for 2007 HTISC Conversion Factors



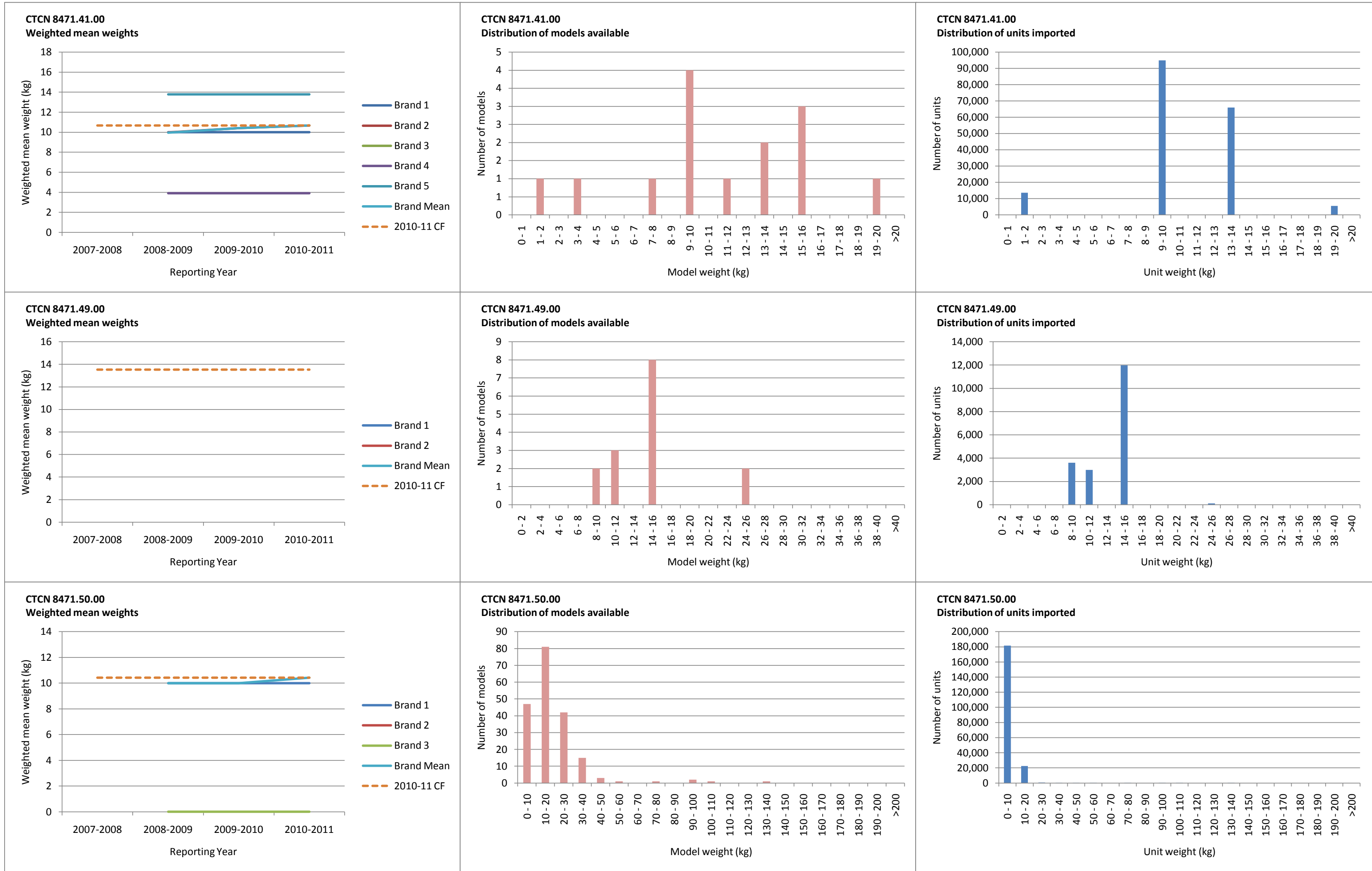
Charts for 2007 HTISC Conversion Factors



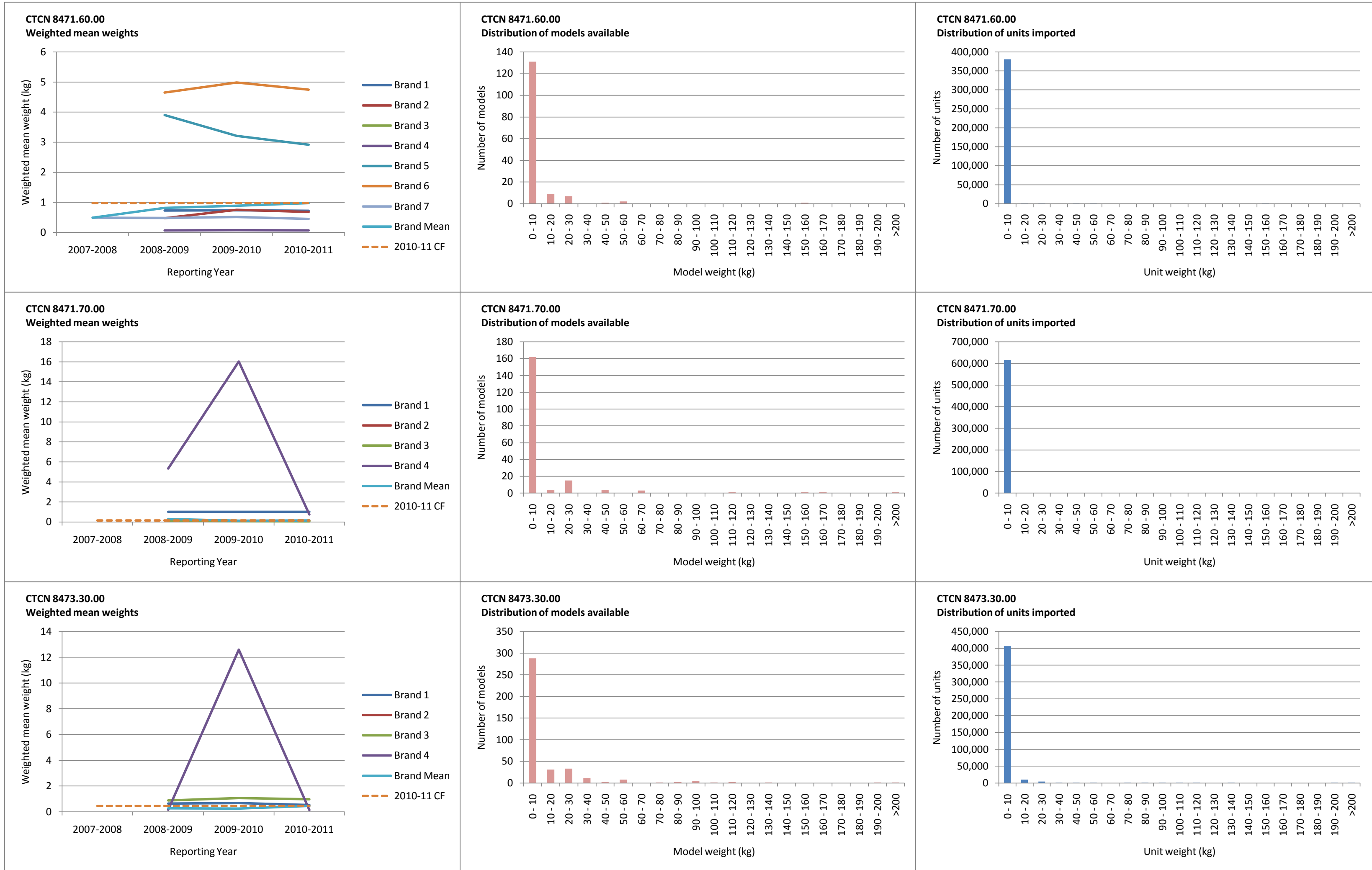
Charts for CTCN Conversion Factors



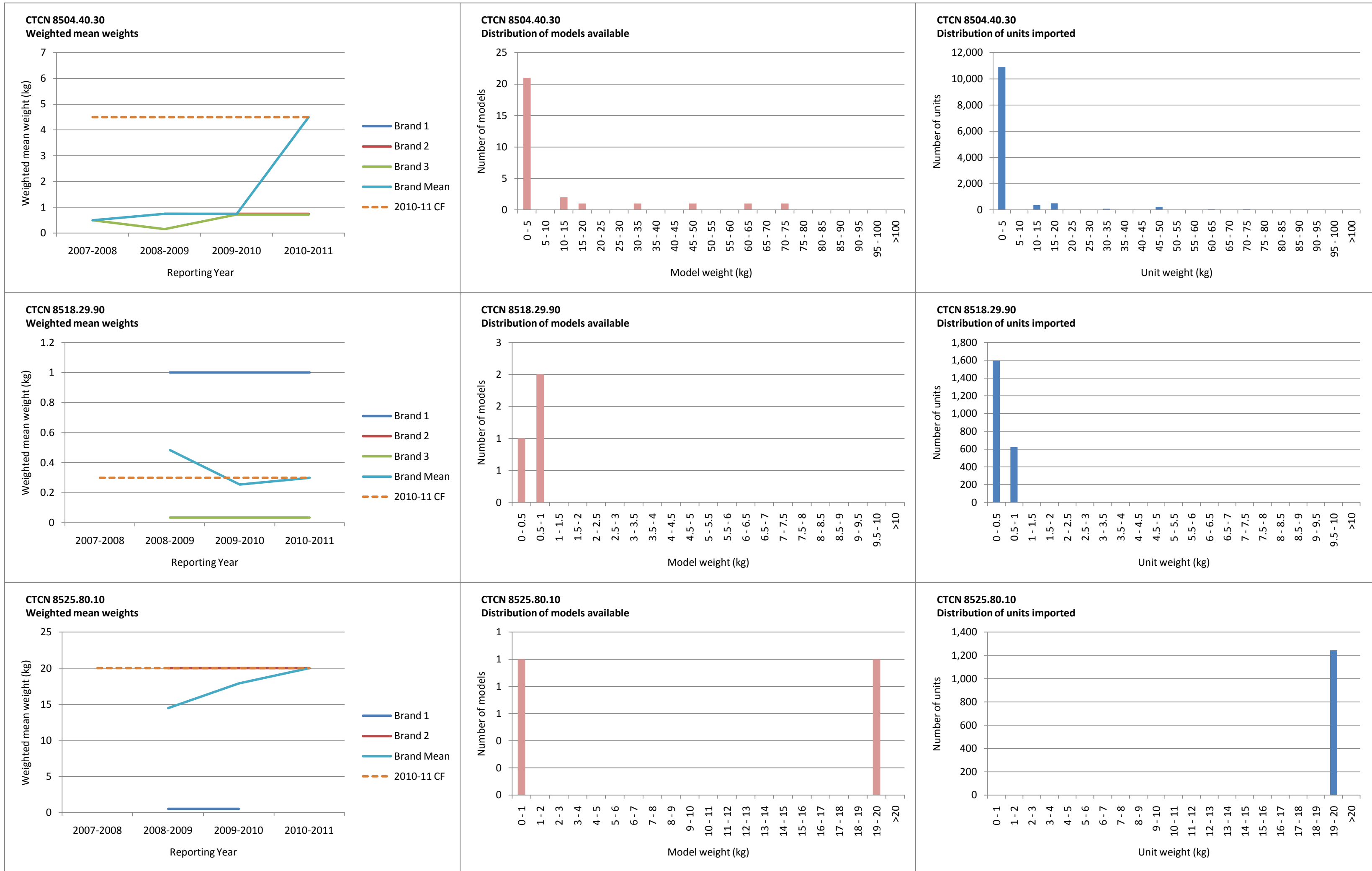
Charts for CTCN Conversion Factors



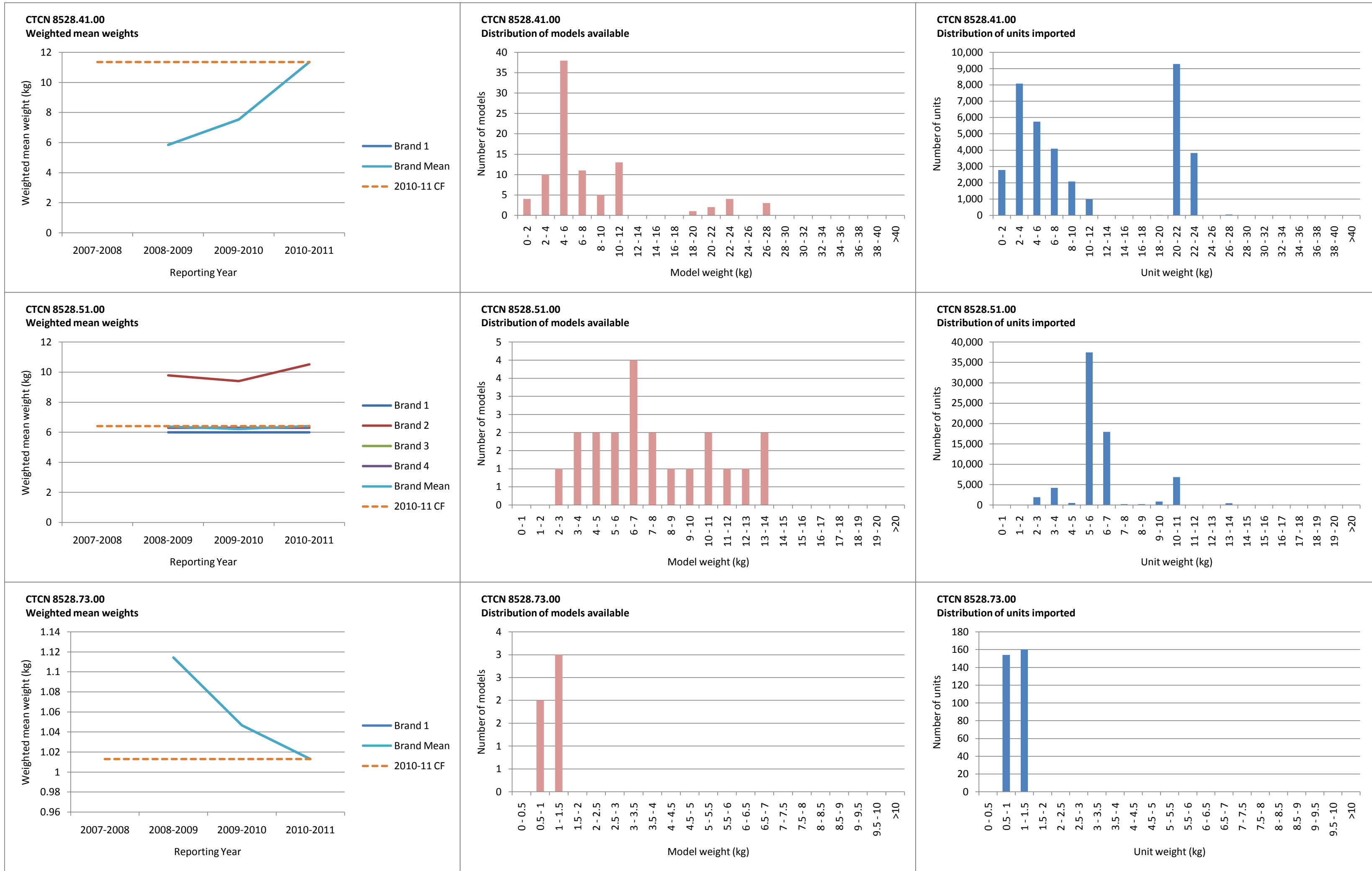
Charts for CTCN Conversion Factors



Charts for CTCN Conversion Factors



Charts for CTCN Conversion Factors



Charts for CTCN Conversion Factors

