

Capability Assessment of Australia's Television Fleet Report

Report prepared by OzTAM for the Department of Infrastructure,
Transport, Regional Development, Communications, and the Arts.

June 2024

Contents

1. Executive Summary	3
2. Project Overview	5
2.1. Metropolitan and Regional Panel Households	5
2.2. Definitions.....	6
2.3. Television Set Information	7
3. Capability Assessment Result	10
Appendix A - Coverage Maps and Universe Estimates	19

1. Executive Summary

In May 2023, OzTAM was appointed by the Department of Infrastructure, Regional Development, Communications, and the Arts to conduct a comprehensive assessment of the technical capability of Australia's existing television fleet.

On May 8, 2023, OzTAM collected data from Metropolitan and Regional panel homes to conduct the assessment. On that date 8,243 panel homes were installed across both services with 95% of installed homes (7,809 homes) contributing to the reporting sample. This sample represents 9.95 million homes (housing 24.9 million people) with at least one working Television Set in Australia.

Across the Metropolitan and Regional Television Audience Measurement Services market areas there are 18.76 million Television Sets in 9.95 million homes equating to an average per home of 1.89 Television Sets.

Chart 1: Number of Television Sets by Market

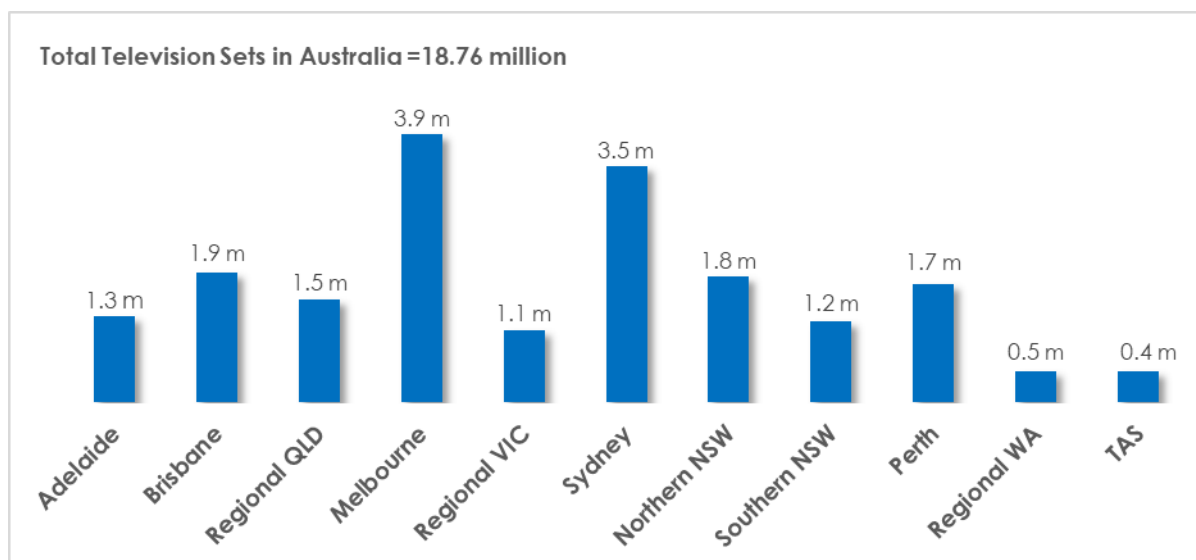
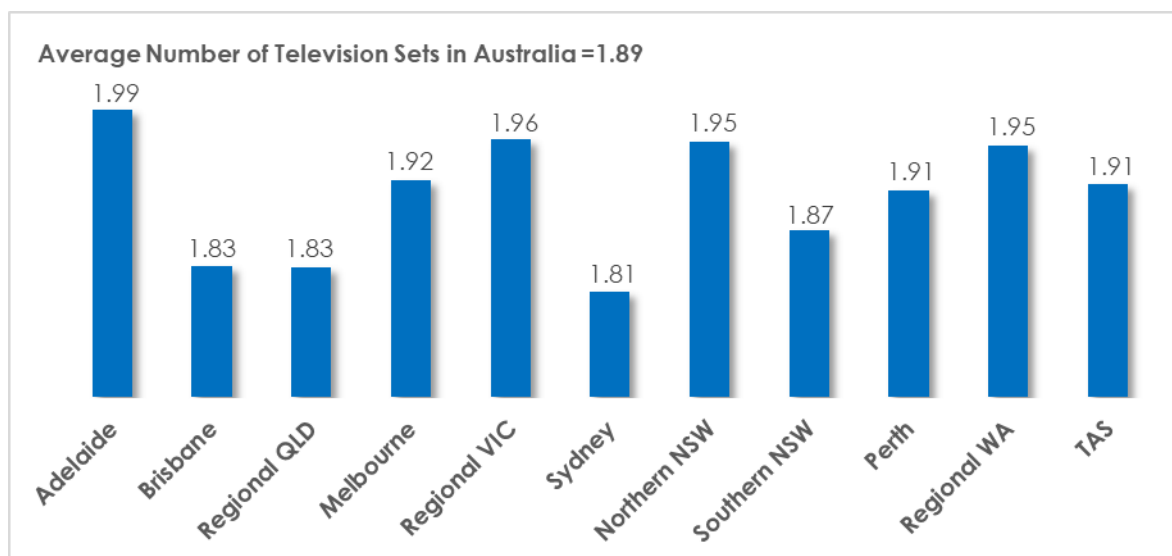
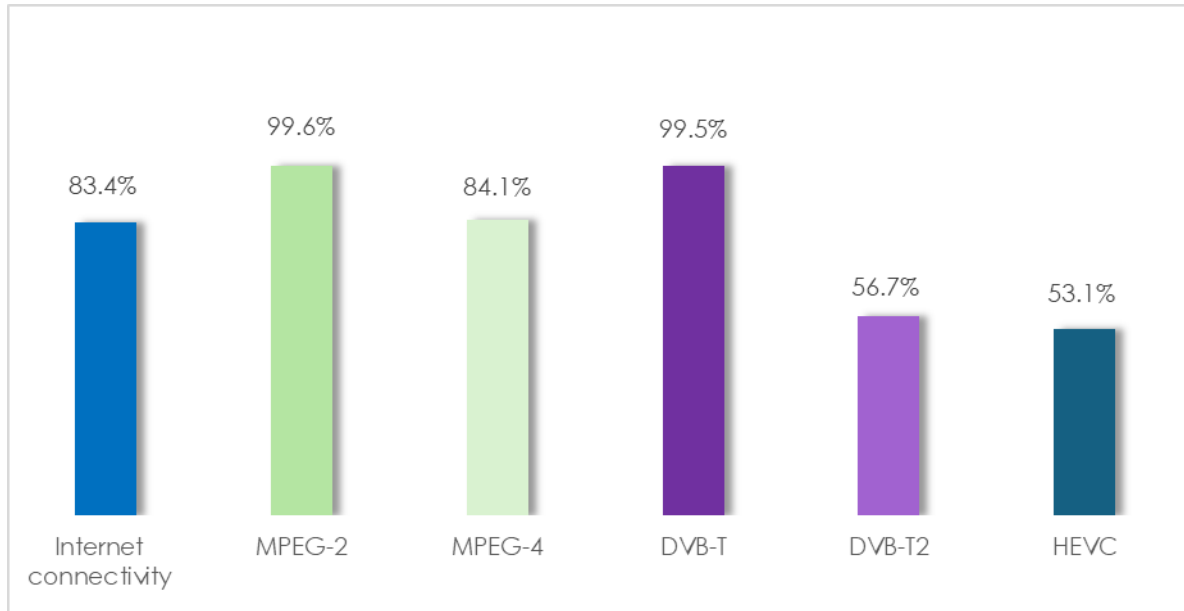


Chart 2: Average Number of Television Sets by Market



Out of 9.95 million homes, 9.37 million have identified Television Set information (Identified Television Set Homes), while 580,000 homes did not have this information. Of the identified Television Set homes, the percentage of homes that have at least one Television Set capable of supporting each technology is highlighted in Chart 3.

Chart 3: Television Set Capability as a Percentage of Identified Homes



2. Project Overview

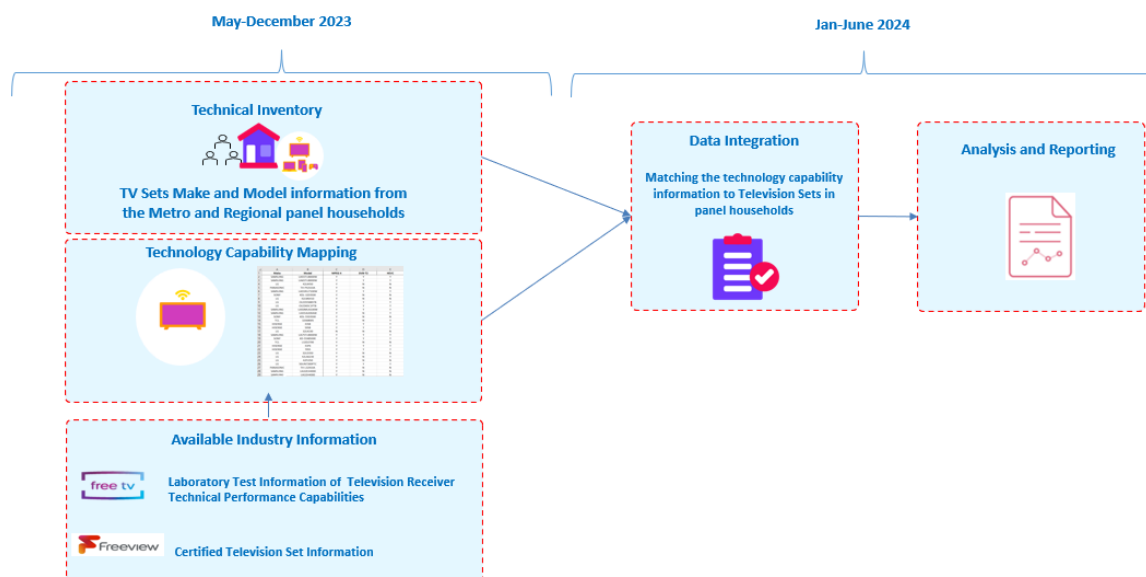
The agreed design of the assessment is based on the Television Set Makes and Models data collected from the combined panel of homes across Metropolitan markets (owned by OzTAM) and Regional markets (owned by Regional TAM).

The information on Television Sets Makes and Models, which forms the Technical Inventory data, is mapped against the technology capability of each working Television Set according to manufacturers' technical specifications and manuals. All available technology capability information from Free TV Australia and Freeview Australia is integrated with the technology capability dataset.

This combined technology capability information is then integrated with the panel household data to provide a complete picture of the number of Television Sets in Australian homes and their technical capabilities.

These project steps are highlighted in Graph 1.

Graph 1: Project Steps



2.1. Metropolitan and Regional Panel Households

OzTAM's Metropolitan panel includes homes across Sydney, Melbourne, Brisbane, Adelaide and Perth. Regional TAM's Regional panel includes homes across Regional Queensland, Northern New South Wales, Southern New South Wales, Regional Victoria, Tasmania and Regional Western Australia.

Homes are recruited to OzTAM's Metropolitan panel and Regional TAM's Regional panel via a large-scale Establishment Survey that helps define the population to be represented and its characteristics, combined with population estimates from the Australian Bureau of Statistics. The survey selection process is random and every private residential household in OzTAM and Regional TAM coverage areas has a chance of being chosen for interview. Panel homes are then selected from the survey respondents to represent the population based on household structure, number of Television Sets and presence of Subscription Television at home.

The survey spans the composition of panel homes (age, sex, occupation groups), as well as screens and viewing technologies in the home, and the recruitment process is carefully managed to ensure the panel is an accurate representation of the overall population for which OzTAM provides data.

Once a home has been recruited onto the panel, all working Television Sets in that home are monitored by a sophisticated metering system that captures viewing to all broadcast television channels on all Television Sets in that home.

OzTAM and Regional TAM's Television Audience Measurement service provider, Nielsen TAM, manages the panels and their field engineers continuously maintain and update the Technical Inventory to collect information about all devices at home (including Television Set Make and Model information).

OzTAM and Regional TAM's Television Audience Measurement service universe consists of all homes and individuals living within these homes with at least one working Television Set, in the Metropolitan and Regional areas. These Television Sets have been used by anyone within the home in the previous 6 months for any activity, for example, watching Live or Playback broadcast content, playing a game on a games console or watching non-broadcast content via Subscription Video on Demand services.

OzTAM and Regional TAM Coverage Maps and Metropolitan and Regional Universe Estimates information are detailed in Appendix A.

Reporting data

On May 8, 2023, OzTAM collected data from Metropolitan and Regional panel homes for the project. On that date 8,243 panel homes were installed across both services.

The reporting level was at 95% corresponding to a sample size of 7,809 homes. This sample represents 9,952,049 homes (housing 24.9 million people) with at least one working Television Set in Australia.

2.2. Definitions

- Household
 - OzTAM and Regional TAM panels consist of all individuals living within households with at least one working Television Set. Household definition includes both owned and rented properties and excludes holiday homes and second residences as well as hotels, guesthouses and non-private dwellings such as hospitals, boarding schools and university halls of residence, nursing homes and other institutions.
 - The terms 'households' and 'homes' are used interchangeably in the report.
- Household Level Data
 - Household Level Data refers to the count of information recorded from the total of 9.95 million households across the Metropolitan and Regional Television Audience Measurement Services market areas.
- Television Set Level Data

- Television Set Level Data refers to the count of information recorded from the total of 18.76 million Television Sets within the panel homes across the Metropolitan and Regional Television Audience Measurement Services market areas.
- Identified Television Set
 - 'Identified Television Set' refers to Television Sets with known technical capabilities based on available information.
- Identified Television Set Homes or Identified Homes
 - 'Identified Television Set Homes' or 'Identified Homes' refer to homes where there is at least one Television Set in the home with identified technical capability.
- Internet Connectivity
 - Television Set capability to connect to the internet
- Digital Broadcast Standards
 - DVB-T: Digital Video Broadcasting – Terrestrial
 - DVB-T2: Digital Video Broadcasting – Second Generation Terrestrial
- Video Codecs - Video compression formats
 - MPEG-2: Moving Picture Experts Group 2
 - MPEG-4: Version 4 of the MPEG format, better compression for video formats
- HEVC / H.265
 - High-Efficiency Video Coding
- Household Technical Capability
 - A household is considered "technically capable" if it has at least one Television Set that supports at least one type of technology. For instance, if a household has two Television Sets and one of them supports MPEG-2, then that household is classified as "MPEG-2 capable".

2.3. Television Set Information

Technology Capability of the Television Sets

There are 14,749 working Television Sets in the panel homes, representing 18.75 million Television Sets overall.

OzTAM assigned the capability of these Television Sets to connect to the internet and their capability of supporting MPEG-2, MPEG-4, DVB-T, DVB-T2 and HEVC technologies based on Television Set manuals and specifications. Any external devices which might be connected to the Television Set was not assessed.

OzTAM collaborated with Free TV Australia and Freeview Australia to integrate all available information about the technical capabilities of the Television Sets with the technology capability dataset. Information from these sources was used to update and, if necessary, override the specifications found in the manuals and specifications.

This combined information was then integrated with the panel household data to provide a complete picture of the number of Television Sets in Australian homes and their technical capabilities.

Relationships Between Broadcast Standards and Video Codecs

Given that the DVB-T broadcast standard uses MPEG-2, any Television Set with DVB-T capabilities can read MPEG-2 encoded video. This assignment takes precedence over the information found in the specifications and user manuals.

Although the DVB-T2 broadcast standard uses the HEVC video codec, it is not mandatory to use the HEVC codec format. Some Television Sets with DVB-T2 capabilities may not support the HEVC codec. DVB-T2 can also use MPEG-4, but this is not a requirement either.

MPEG-4 format is backwards compatible so devices with MPEG-4 can decode MPEG-2 videos. Again, this assignment takes precedence over the information found in the specifications and user manuals.

While MPEG versions are compatible with each other, they may not decode other formats that use different compression algorithms. For example, a Television Set enabled with HEVC may not be able to decode a video file in MPEG-4 format.

Implementation

Technology capability assignment

The Television Set capability information relating to connecting to the internet, the television broadcast standard (DVB-T and DVB-T2) and video codec (MPEG-2, MPEG-4 and HEVC) was sourced from the manuals and specifications for each Television Set model where available. Not all manuals contained the relevant information to determine the Television Set capability.

OzTAM consulted with television manufacturer experts, who revealed that manufacturers often do not include information on broadcast standards or codec formats in user manuals for the following reasons:

- Consumers typically do not seek this information when purchasing a television.
- DVB-T2 and HEVC capabilities are not commonly used standards in Australia and are not required.

It is likely that newer Television Sets have all the necessary capabilities, but these capabilities may not be listed in the specifications, user manuals or marketing material provided by the manufacturer. Therefore, it is anticipated that there are Television Sets within this project that do not list the DVB-T2 capability in the manuals but are DVB-T2 capable. For these reasons the resulting data should be considered as a minimum estimate.

It should also be noted that the Television Sets within the panel will vary in age, including some pre-digital broadcast models, while others may be discontinued models and thus lack the most up-to-date technology. The country of manufacture could also be a factor, as some of these Television Sets may have been imported by

consumers and may not have the same specifications as televisions manufactured for the Australian market.

Free TV Australia and Freeview Australia information integration

OzTAM collaborated with Free TV Australia and Freeview Australia to integrate all available information about the technical capabilities of the Television Sets with the technology capability data. This information was used to update and, if necessary, override the specifications found in the manuals and specifications.

Free TV Australia

Free TV Australia conducted laboratory testing of the performance of a representative sample of Australian TV receivers in a range of alternative reception scenarios for the Australian Communications and Media Authority (ACMA) in April 2023. This data provides technology capability information for MPEG-2, MPEG-4, DVB-T, DVB-T2 and HEVC for 33 Television Models. OzTAM collaborated with Free TV Australia to integrate this information with the technology capability data. There were 614 Television Sets in the panel homes that matched with the Free TV Australia data. Please contact Free TV Australia for more details about the Technical Performance of Television Receivers in Australia project.

Freeview Australia

Freeview Australia certifies Television Set Make and Models, providing technology capability information for MPEG-4 and DVB-T across a range of Television Sets. OzTAM collaborated with Freeview Australia to integrate this information with the technology capability data. There were 4,215 Television Sets in the panel homes that matched with the Freeview Australia data. Please contact Freeview Australia for more details of the certification process.

3. Capability Assessment Result

Across the Metropolitan and Regional Television Audience Measurement Services market areas there are 18.76 million Television Sets in 9.95 million homes equating to an average per home of 1.89 Television Sets.

Out of 9.95 million homes, 9.37 million have identified Television Set information (Identified Television Set Homes), while 580,000 homes did not have this information. Among these, 278,000 homes (2.8%) lack information about their Television Set models (i.e. wall mounted sets) and 301,000 homes (3%) do not have manuals and specifications available for their Television Set make and models.

Of the identified Television Set homes, the percentage of homes that have at least one Television Set capable of supporting each technology is highlighted in Table 1.

Table 1: Percentage of Identified Television Set Homes That Have At Least One Television Set Capable of Supporting Each Technology

Technology Capability	Yes	No
Internet Connectivity	83.4%	16.6%
MPEG-2	99.6%	0.4%
MPEG-4	84.1%	15.9%
DVB-T	99.5%	0.5%
DVB-T2	56.7%	43.3%
HEVC	53.1%	46.9%

Nearly all homes are capable of supporting MPEG-2 (99.6%) and DVB-T (99.5%).

The analysis of technical capabilities that vary by homes, Internet Connectivity, MPEG-4, DVB-T2 and HEVC, reveal significant insights when broken down by key demographic variables.

Examining the data across household income, aggregate market, grocery buyer age group and presence of children reveals a better understanding of the distribution and adoption of these technologies.

The following charts, Chart 4 to Chart 19, illustrate the technical capabilities for Internet Connectivity, MPEG-4, DVB-T2 and HEVC, broken down by these key demographic variables.

Household Income

Higher household income groups consistently show a higher capability for all four technologies. Refer to Charts 4 through 7 for further details.

Chart 4: Internet Connectivity by Household Income

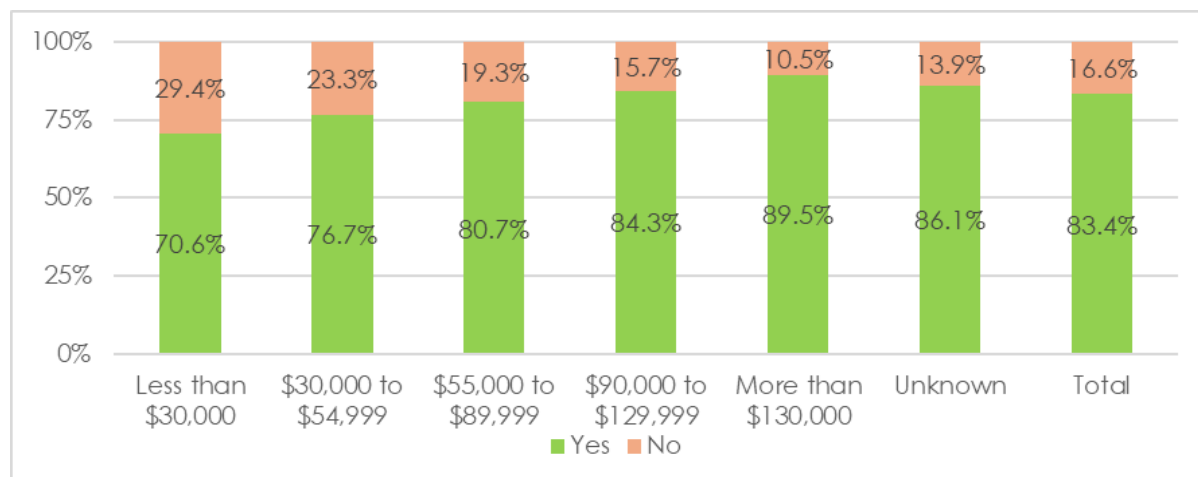


Chart 5: MPEG-4 by Household Income

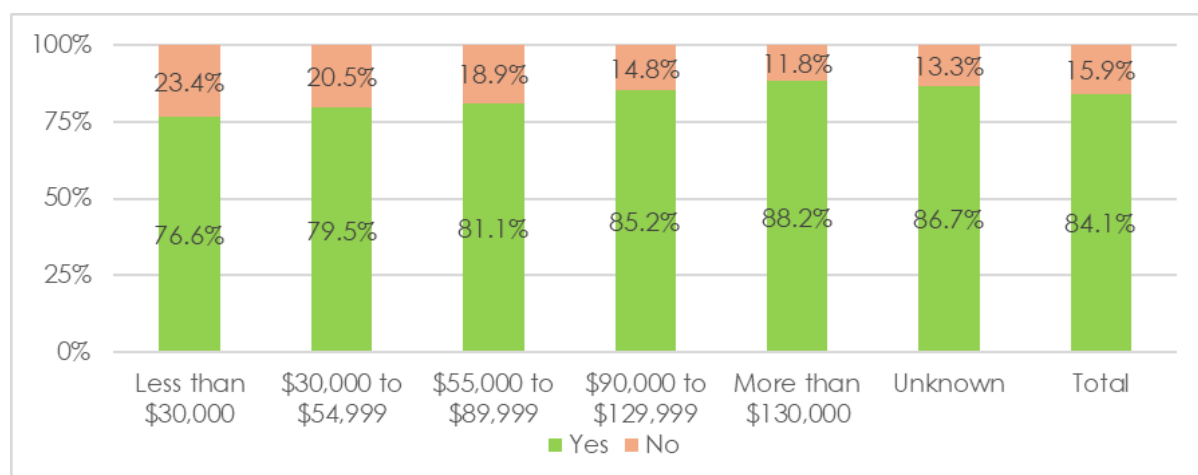


Chart 6: DVB-T2 by Household Income

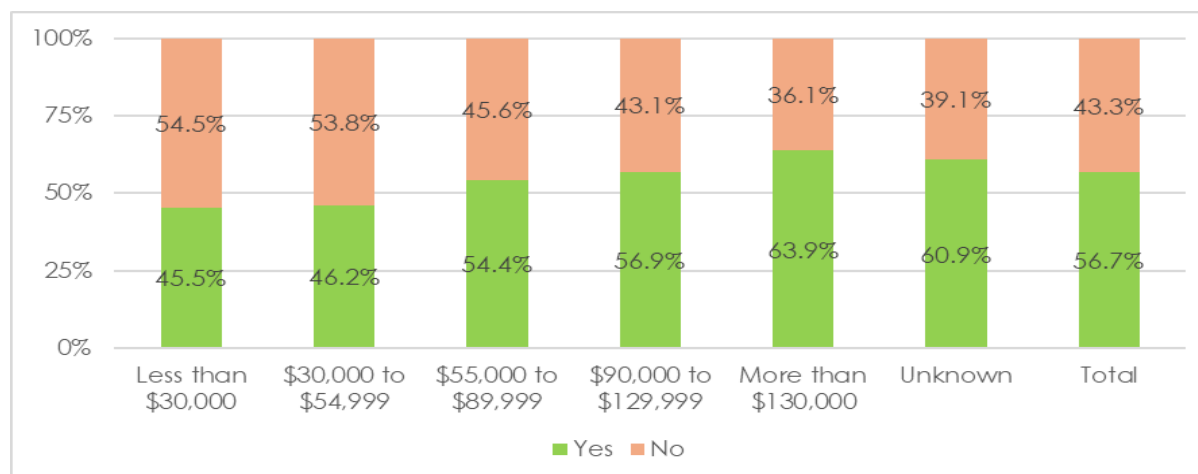
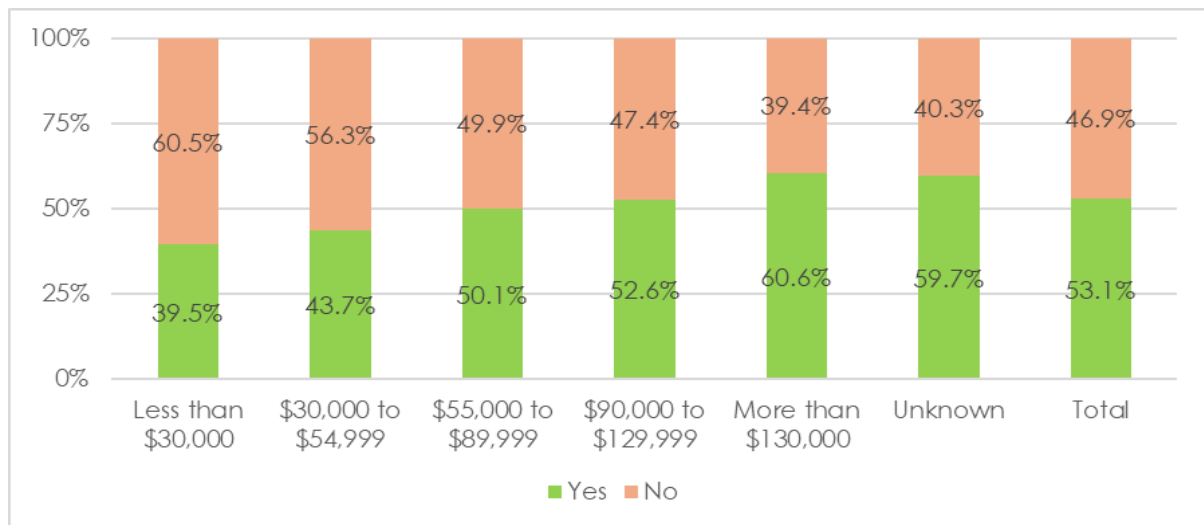


Chart 7: HEVC by Household Income

Grocery Buyer Age Group

Homes with grocery buyers aged between 35 and 64 display a higher capability for all four technologies. Refer to Charts 8 through 11 for further details.

Chart 8: Internet Connectivity by Grocery Buyer Age Group

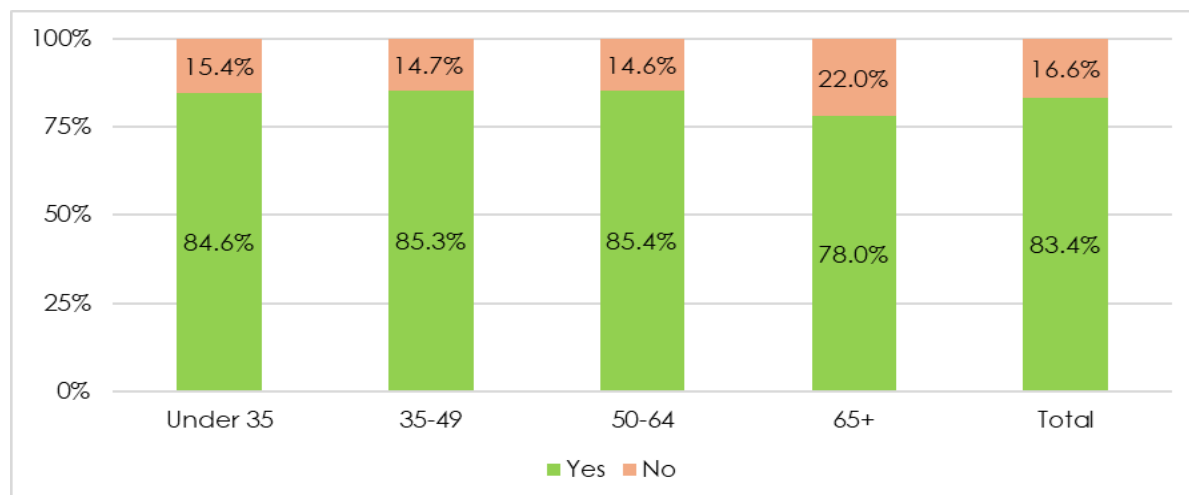


Chart 9: MPEG-4 by Grocery Buyer Age Group

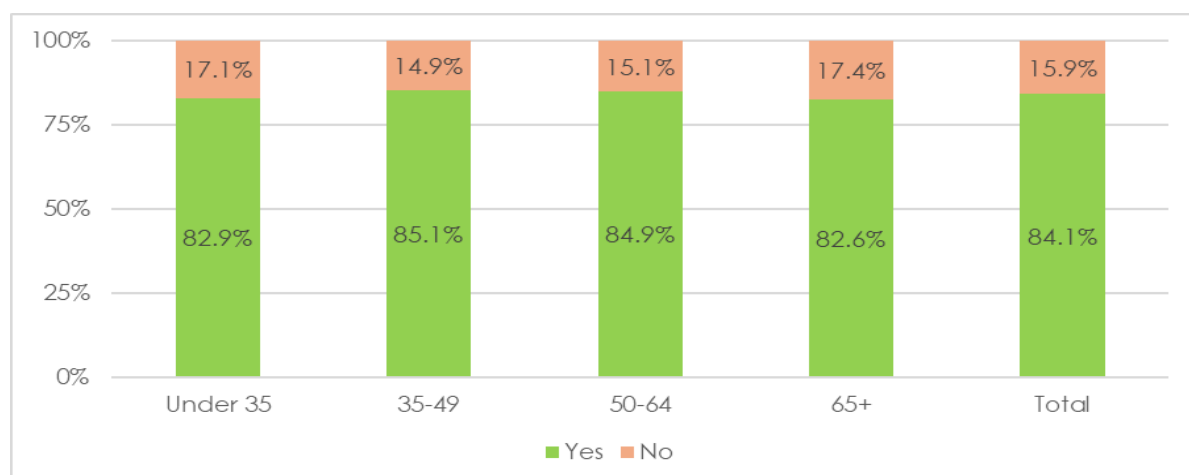


Chart 10: DVB-T2 by Grocery Buyer Age Group

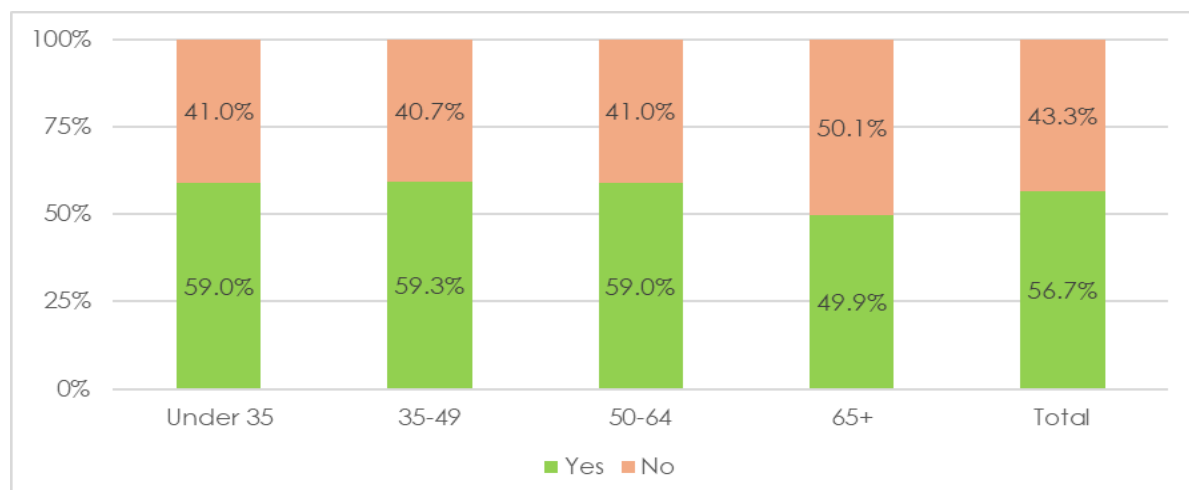
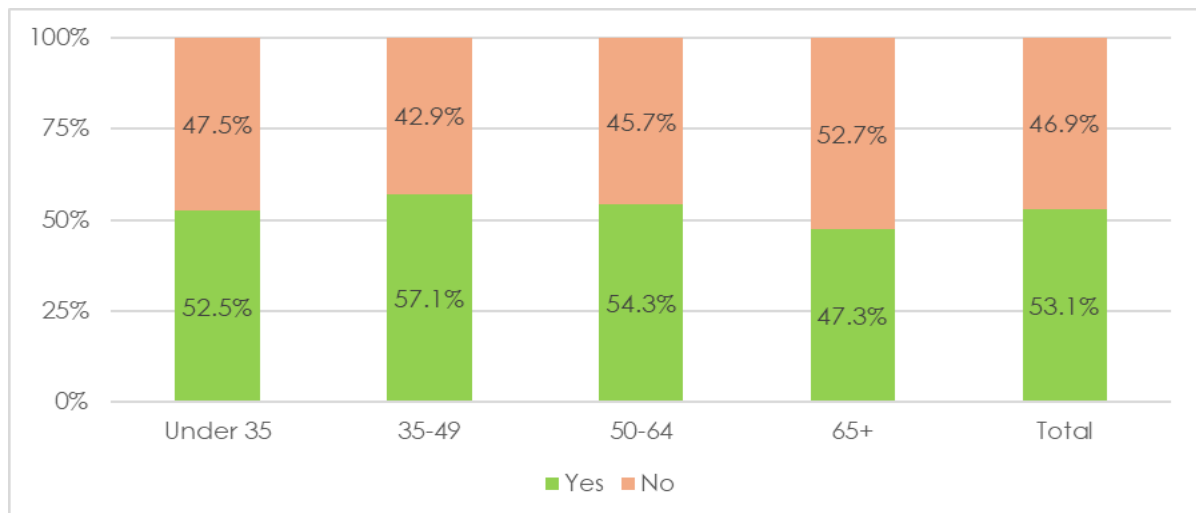


Chart 11: HEVC by Grocery Buyer Age Group

Presence of Children

Households with at least one child at home tend to have a higher capability for all four technologies. Refer to Charts 12 through 15 for further details.

Chart 12: Internet Connectivity by Presence of Children

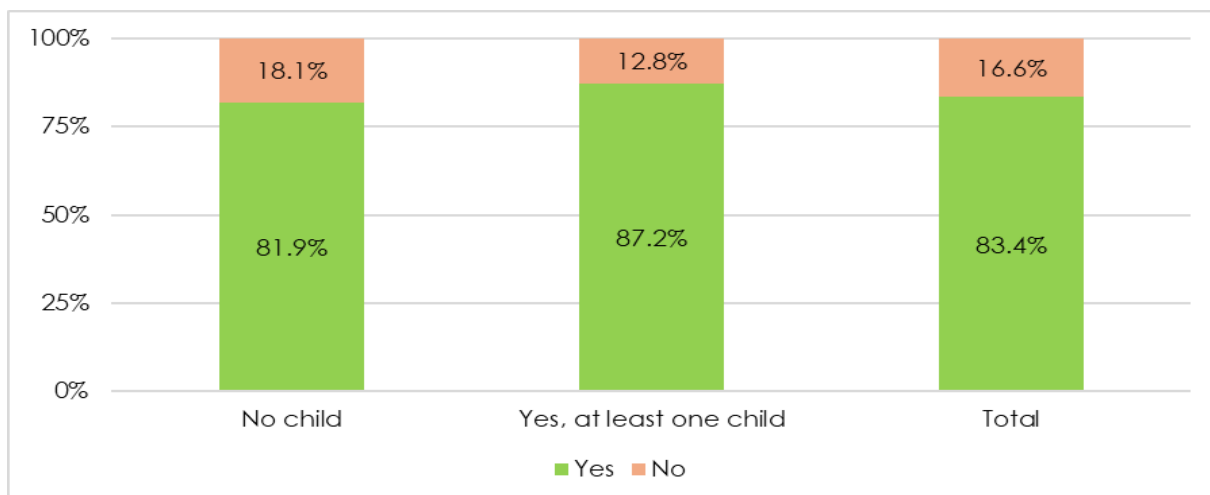


Chart 13: MPEG-4 by Presence of Children

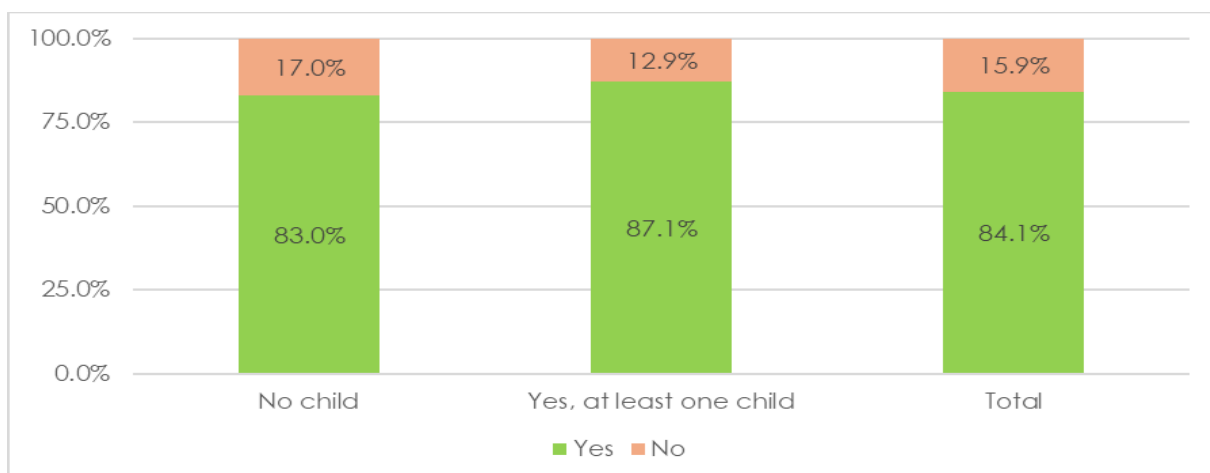
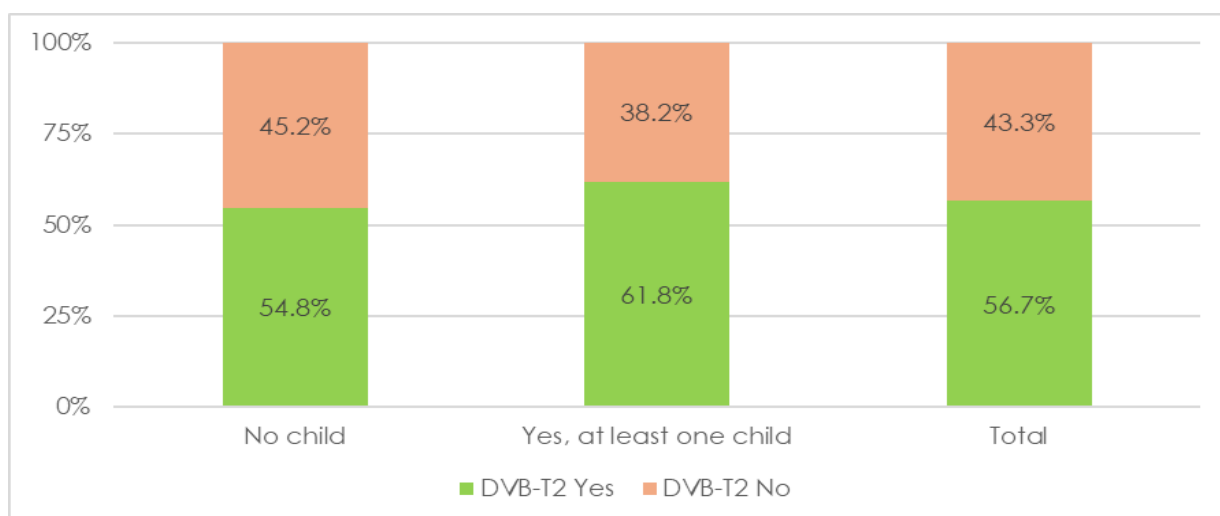
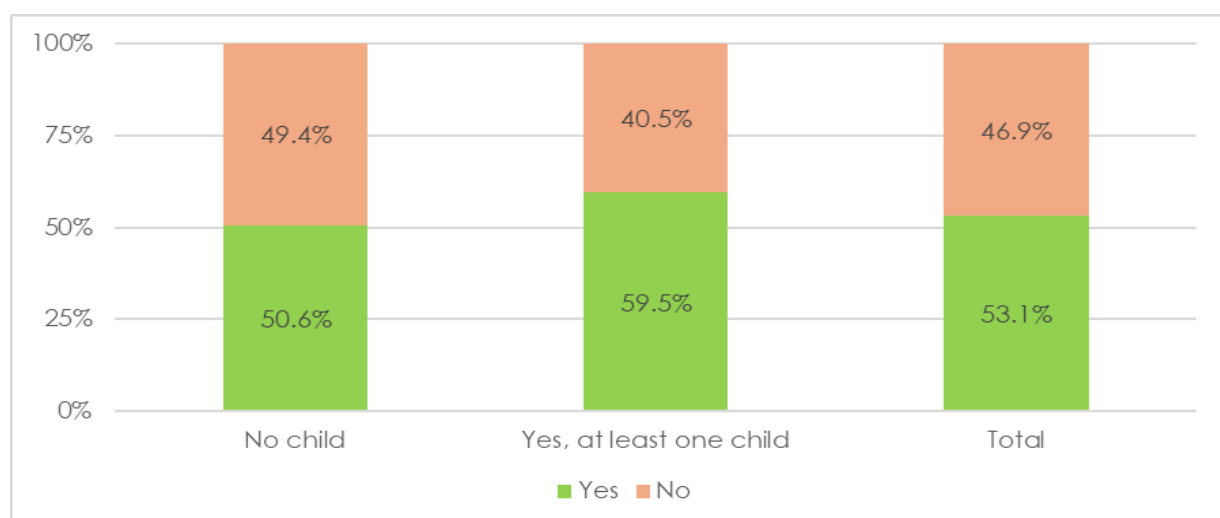


Chart 14: DVB-T2 by Presence of Children**Chart 15: HEVC by Presence of Children**

Aggregate Market

The aggregate market variable presents a different trend:

- There is no significant difference between Metropolitan and Regional market homes for Internet Connectivity and MPEG-4 capabilities.
- Regional market homes show higher DVB-T2 capability.
- Metropolitan market homes exhibit higher HEVC capability.

Refer to Charts 16 through 19 for further details.

Chart 16: Internet Connectivity by Aggregate Market

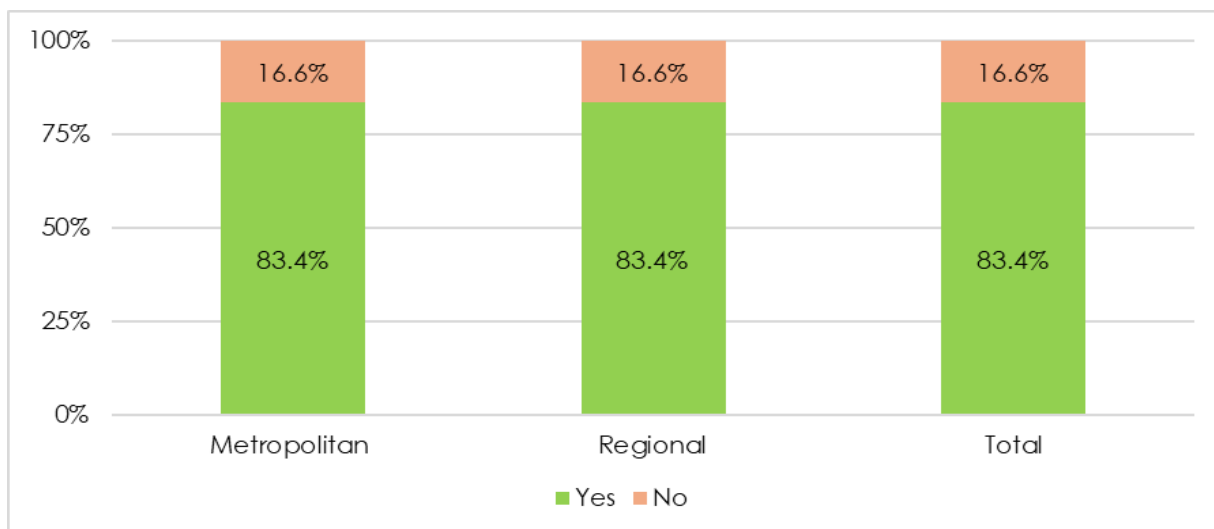


Chart 17: MPEG-4 by Aggregate Market

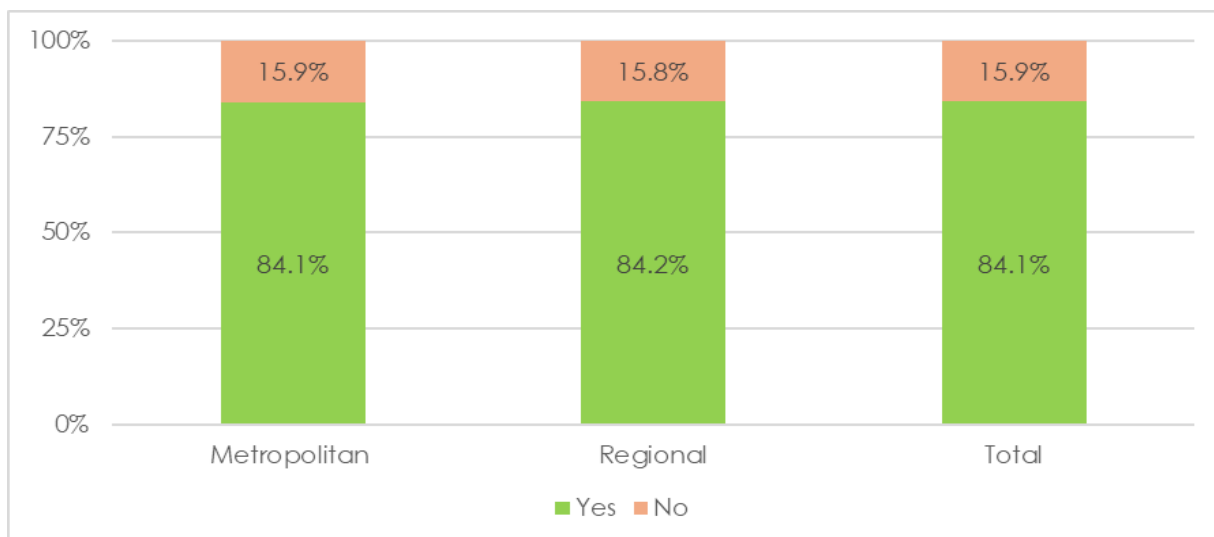
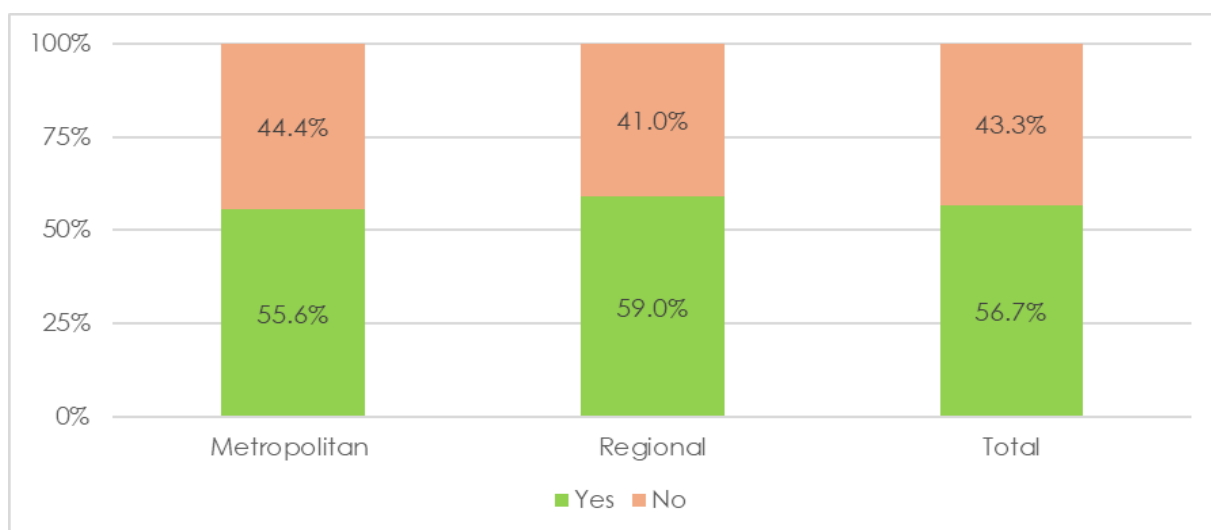
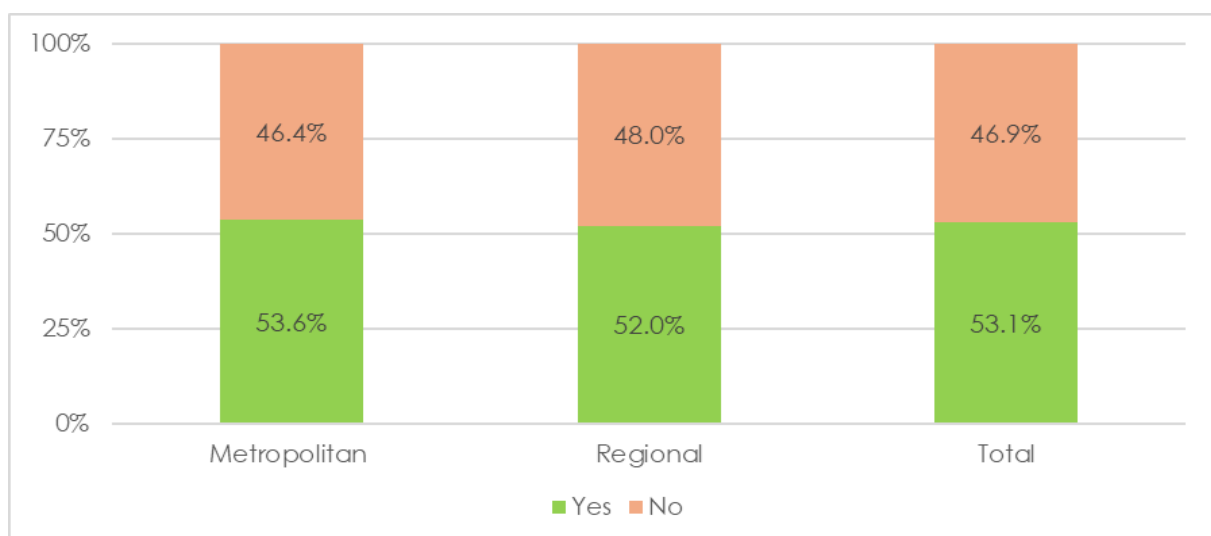


Chart 18: DVB-T2 by Aggregate Market**Chart 19: HEVC by Aggregate Market**

Appendix A - Coverage Maps and Universe Estimates

Coverage Maps

OzTAM Coverage Maps: [Metropolitan Coverage Maps \(oztam.com.au\)](https://www.oztam.com.au)

Regional TAM Coverage Maps: [Regional Coverage Maps \(regionaltam.com.au\)](https://www.regionaltam.com.au)

Universe Estimates

OzTAM Universe Estimates: [Metro Universe Estimates 2023 OzTAM.pdf](#)

Regional TAM Universe Estimates: [Regional Universe Estimates 2023 Regional TAM.pdf](#)

There are some market areas that can receive broadcaster signals from both Metropolitan and Regional markets and are referred to as overlap areas (Brisbane - Northern NSW, Brisbane - Regional QLD, Melbourne - Regional Victoria and Sydney - Northern NSW). There were 316 homes in the reporting panel sample in the overlap areas on the day.

These overlapping homes are included in Regional markets in the reports listed in deliverables.

The tables below show the total household universe for each market.

Table A: Total Households Across Metropolitan and Regional Markets

Market	Total Households
Sydney	1,918,000
Northern NSW	941,400
Southern NSW	635,300
Melbourne	2,053,400
Regional VIC	540,900
Brisbane	1,039,000
Regional QLD	821,100
Adelaide	632,900
Perth	903,900
Regional WA	233,200
TAS	233,100
Total	9,952,000