



(RESEARCH ARTICLE)



Analysis of complaints and damage to Samsung LED TV components at the Teuku Umar Service Center Denpasar, Bali

I Nengah Sandi^{1,*} and I Wayan Teresna²

¹ Department of Physics, Faculty of Mathematics and Natural Sciences, Udayana University, Bali, Indonesia.

² Department of Electrical Engineering, Bali State Polytechnic, Indonesia.

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Abstract

Research has been carried out at the Samsung Service Center Teuku Umar Denpasar. The aim is to find out the characteristics of the damage to the Samsung LED TV that came to the Teuku Umar Service Center for 42 days. The field of work carried out at the location is the repair of electronic equipment such as TVs, cellphones, and laptops. The tools used are various types of screwdrivers, multimeter, solder, soldering iron, pliers, tweezers, and a magnifying glass. The work process at Samsung Service is done by replacing damaged TV components. Based on the results of the study, it can be identified that the complaints that often occur on Samsung LED TVs that come to the Teuku Umar Service Center are the TV turns off and is followed by damage to no picture, while other complaints only occur in a few cases. Damage that often occurs is PBA as much as 32%, power supply as much as 25.8%, LCD as much as 16.2%, LED as much as 12.9%, and TICON, housing top, trade in unit, and replace key each as much as 3.2%. So the most common complaints on Samsung LED TV are dead and no picture, while the most common component damage is the PBA and the power supply.

Keywords: Samsung LED TV; Types of complaints; Component damage; Level of damage

1. Introduction

Samsung is the world's largest electronic device maker and is an icon of the Samsung Group. The company is the largest conglomerate in South Korea and is headquartered in Seocho Samsung Town in Seoul, South Korea. Samsung's history began in 1938 as a trading company, shipping dried fish and fruits founded by Lee Byung-Chul (1910-1987). The first time Samsung released a cellphone in the 90s decade. Samsung Group issued a mobile phone (mobile phone) following the times and very attractive world market [1].

The company was changed to Samsung Corporation in 1951. Samsung Electronics was formed in 1969 in Daegu, South Korea under the name Samsung Electric Industries which initially produced electronic devices such as TVs, calculators, refrigerators, air conditioners and washing machines. The company is also noted to have produced more than 10 million black-and-white TVs in 1981, then merged with Samsung Semiconductor & Communications in 1988. PT. Samsung Electronics Indonesia as one of the well-known electronics companies and dominates the national market such as television, mobile phones, and android. The products created by Samsung are very diverse and innovative, this is done in order to answer the needs and desires of consumers for products that are increasingly developing and innovative. Samsung's success in shifting competitors in the electronics sector, especially television, makes Samsung superior, Samsung produces innovative and quality products so that the prices marketed by Samsung are in accordance with the quality of their products. Samsung also makes the brand stick in the minds of consumers with innovations from Samsung products, so that consumers are interested in buying televisions of this brand. Samsung will continue to strive to introduce products that can contribute to the development of the electronics world [2].

* Corresponding author: I Nengah Sandi

Faculty of Mathematics and Natural Sciences, Udayana University, Bali, Indonesia.

With the development of technology in general, the world of communication is also progressing. One of the real evidences is the development of print mass media to electronic mass media. If in the past we only knew books, newspapers, magazines, and other print mass media, now we also know electronic mass media such as recordings, radio, film, television and even the internet. Television is not a foreign word to our ears. It is almost certain that every day we watch television (TV). Or at least, currently in one house there is at least one TV. This is because people need TV to know the latest news and information, both domestically and abroad. Of course, as something familiar and even part of our lives, the development of television itself will have an impact on human life on a micro level and Indonesian people's life on a macro level [3].

Television that is popular with the public today is the last generation, namely LED TV. This is because LED TVs have picture quality with LED Backlight technology to replace the fluorescent light found on LCD TVs. In addition, LED TVs are also easy to carry everywhere, do not take up a lot of space, and are friendly to the environment. and does not cause radiation that endangers life, especially humans [4]. The results of previous research on LCD and LED tube TVs found that there was a significant difference in radiation between the three TVs ($p < 0.05$), where tube TV radiation was greater than LCD and LED TV [5]. A similar study was also conducted in 2017, obtained at a distance of 0.5 m, showing that the radiation from LED television is 0.49 milliGaus and that of tube television is 0.65 milliGaus [6]. This is the reason that LED TVs are more popular with the public.

Given the importance of using a TV in everyday life, it is necessary to know how a television works and the components contained in a Samsung TV. To be able to understand how television works, beginners should first learn how it works. In repairing television, it begins with analyzing, then the results of the analysis are carried out by direct observation by measuring the voltage at each point.

A Samsung company that is growing in Denpasar City Center Bali, is engaged in the repair of Samsung brand electronic equipment, so it is called the Samsung Service Center. One of the parts that are much-loved because of the many benefits, then the services are also provided. This is because the equipment or every component including the TV has a time limit so that it will die in time. The number of users also allows the number of damaged TV equipment, so it is necessary to analyze how the complaints of the TV damage are and what components are often damaged.

This study aims to determine the types of complaints on Samsung LED TVs and to determine the types of damage to Samsung LED TVs on the Samsung Teuku Umar Service Center Denpasar for the period October to November 2021.

2. Material and methods

Place and time of research. Research on the comparison of the level of damage to Samsung TV components was carried out at the Samsung Service Center on Jalan Teuku Umar Denpasar Bali. Learning about Samsung TV components was carried out on October 13 to 28, 2021. Understanding of the Comparison of the level of damage to TV components was carried out on October 30 to November 5, 2021, while data collection was carried out on November 6 to 14, 2021.

2.1. Tools and materials

The tools and materials used in the research on the comparison of the level of damage to Samsung TV components are Samsung TV, multimeter, electric screwdriver, tweezers, soldering iron, pliers, magnifying glass, and soldering tin.

2.2. Data retrieval

The data collection process starts from November 6 to 14, 2021. The data taken is the level of damage to Samsung TV components. This is done to find out whether each Samsung TV has a different level of responsiveness. The difference is obtained from a comparison of data from each known Samsung TV component. Data retrieval was carried out at the Samsung service center for 1 month and 52 Samsung LED TV damage data were obtained at sizes 32 inches and above with various damages. From the data selected by simple random using lottery to select a sample of 32 pieces.

2.3. Data analysis

The data obtained were analyzed using the SPSS computer program. The data were analyzed using descriptive characteristics to determine the characteristics of the research results.

3. Results

From the results of data processing, it was found that there were several complaints on the Samsung LED TV components. The types of TV complaints that come to the Samsung Teuku Umar service center are shown in Table-1, while the damage to the replaced components is shown in Table-2.

Table 1 Types of Samsung TV Complaints That Come to the Service Center

Complaints Coming	Frequency (seed)	Percentage (%)
Off-On unit	1	3.23
Totally dead	22	70.95
Release the power button	1	3.23
Blank and restart	1	3.23
Pixeled dot screen	1	3.23
Blank Screen	1	3.23
Dark screen	1	3.23
Can't connect to sound bar	1	3.23
No picture	2	6.44
Total	31	100.00

Table-1 shows the conditions that often occur if there is damage to the TV components, for example, damage occurs to the PBA, the TV condition will experience the unit turning off and on, completely off, blank and restarting or not connecting to the sound bar. If this occurs on the LCD, the TV will experience a dot fixed or blank screen and if damage occurs to the LED bar component, the TV will experience a dark screen and no picture. The TV complaints that came the most were 71.0% dead total, 6.5% no picture, and releasing the power button, blank and restart, dot pixel screen, blank screen, dark screen, and not connecting to the respective sound bar 3.2% each. The proof uses the formula $\text{Percentage} = (\text{Number of Parts}/\text{Total Amount}) \times 100\%$.

The types of complaints from Samsung LED TVs that came to the Teuku Umar service center for 42 days when viewed from the histogram graph are shown in Figure-1, while the type of damage to the replaced components is shown in Figure-2.

Table 2 Types of Damage to Samsung TV Components That Enter the Teuku Umar Service Center

Damage	Frequency (seed)	Percentage (%)
LCD	5	16.12
PBA	10	32.26
Power Supply	8	25.80
TICON	1	3.23
Housing Top	1	3.23
Trade in Unit	1	3.23
Replace Key	1	3.23
LED	4	12.90
Total	31	100.00

From Table-2 above, it can be described that there are several types of damage to Samsung TV components including LCD, PBA, Power Supply, TICON, housing top, trade in unit, replace key, and LED. From some of these components, it is

known that the damage that often occurs is PBA as much as 32%, Power Supply 25.8%, LCD as much as 16.2%, LED as much as 12.9%, and TICON, housing top, trade in unit, and replace key each as much as 3.2%. The proof uses the formula Percentage = (Number of Parts / Total Amount) x 100%.

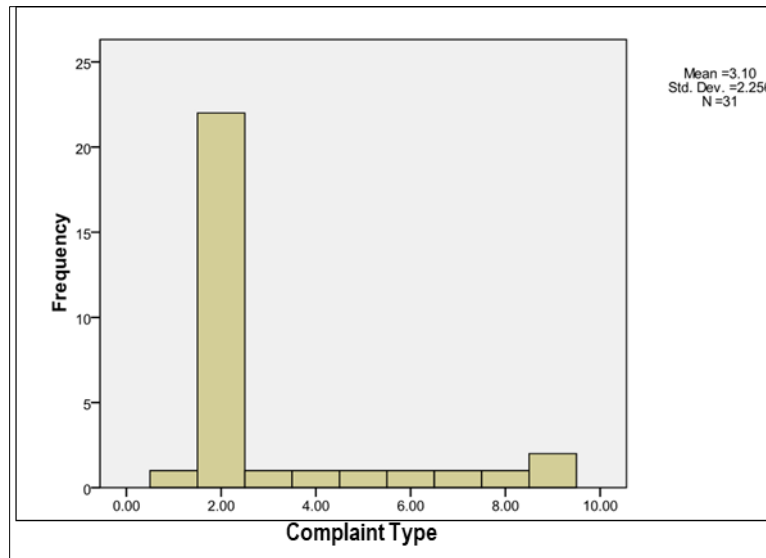


Figure 1 Graphics of Samsung TV Complaints That Come to the Teuku Umar Service Center

Figure-1 shows that Samsung TV complaints that came to the Teuku Umar Service Center were dominated by dead damage followed by no picture damage, while other complaints only occurred in a few cases.

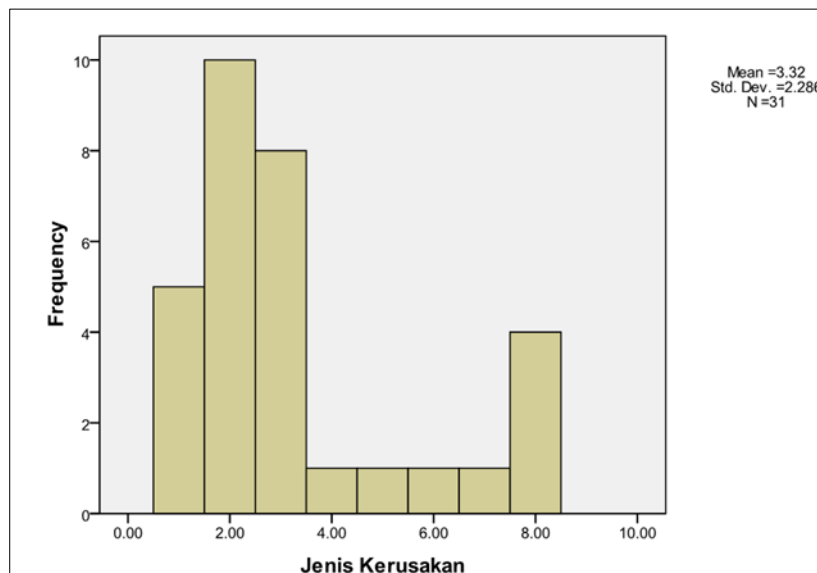


Figure 2 Graph of Common Types of Damage to Samsung TV Components

Figure-2 shows that the damage to the Samsung TV that came to the Teuku Umar Service Center was dominated by damage to the PBA, power supply, LCD, and LED, while other damage only occurred to a few components.

4. Discussion

4.1. Samsung TV complaints that enter the Teuku Umar Service Center

Several complaints about Samsung TV damage that entered the Teuku Umar Service Center for 1 month including damage to the PBA then the TV condition will experience the unit turning off, completely dead, blank and restarting or not connecting to the sound bar and if damage occurs to the LCD then the state of the TV will experience a dot fixed screen or a blank screen, and if damage occurs to the LED Bar component, the TV will experience a dark screen state and no picture. The TV complaints that came the most were 70.95% total dead, 6.44% no picture, and each power button was off, blank and restarted, dot pixel screen, blank screen, dark screen, and didn't connect to the sound bar. as much as 3.23%

4.2. Some Components That Often Experience Damage

From the available data, we can see that there are several Samsung TV components that are often damaged including: LCD (Liquid Crystal Display), PBA (mainboard), SMPS (power supply), TICON (fixed pair with glass panels), housing top, trade in unit, replace key, LED (Light Emitting Diode). From some of these components, it can be identified that the most frequent damage is PBA components as much as 32,26%, Power Supply 25.80%, LCD as much as 16.12%, LED as much as 12.90%, and TICON, housing top, trade in unit, and replace key each as much as 3.23%.

5. Conclusion

There are several Samsung LED TV components that are often damaged, including LCD, PBA, power supply, TICON, housing top, trade in unit, place key, and LED. The most frequent damage is PBA components as much as 32,26%, power supply 25.80%, LCD as much as 16.12%, LED as much as 12.90%, and TICON, housing top, trade in unit, and replace key respectively. 3.23%, PBA 32,26%, power supply 25.80%, LCD 16.12%, LED 12.90%, and TICON, housing top, trade in unit, and replace key each 3,23%. Some of these component damage caused several conditions including: the unit turns off and on, completely off, releases the power button, blanks and restarts, dot fixed screen, blank screen, dark screen, does not connect to the sound bar, and no picture. This complaint is dominated by dead damage and followed by no image damage, while other complaints only occur in a few cases.

Compliance with ethical standards

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Disclosure of conflict of interest

For the sake of smooth publication, we as the authors agree to give the correspondent authors as the main authors the flexibility to arrange the writing format and arrange the publishing costs in accordance with the publisher's provisions. This was done because the main idea of this research came from the main author, so we will not demand anything in the future.

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