

### Sony Network Walkman NW-MS70D



I have chosen the Sony Network Walkman music player for evaluation. It was introduced in February 2003 as a replacement for other MP3 players and to compete with other products like the iPod.

It is not just an MP3 player as other music formats can be used. It is especially good at recording tracks or whole CDs. Music is transferred through a PC with Sony's SonicStage software.

#### ***Technical Specification***

<b>Interface(s)</b>	Original USB
<b>Platforms</b>	Windows 98 to Windows XP
<b>Dimensions</b>	36.4 x 48.5 x 18.0 mm
<b>Weight</b>	54g
<b>Playable music format(s)</b>	ATRAC3 plus, ATRAC3
<b>Sound</b>	Stereo
<b>Battery life</b>	33 hrs.
<b>Storage</b>	256MB built-in flash memory
<b>Storage expansion type</b>	1 Memory Stick Duo slot
<b>FM tuner</b>	No
<b>Voice recording</b>	No
<b>Software</b>	SonicStage 1.5, OpenMG Jukebox software
<b>Inputs / outputs</b>	Headphone jack
<b>Extras?</b>	Rechargeable via USB port
<b>Power source</b>	Non-removable, rechargeable Ni-MH battery
<b>Warranty</b>	One year

## **Product Evaluation**

### ***Manufacturer's Product Description***

Sony's NW-MS70D Network Walkman Digital Music Player is the latest solution from Sony for listening to digital music on the go. Small enough to carry in your pocket or purse, this titanium device comes equipped with 256MB of embedded memory allowing you to store 178 songs. The Internal Battery provides up to 33 hours of continuous Playback (ATRAC3 Playback), and the Magic Gate Memory Stick Duo expansion slot allows you to take along even more music! The NW-MS70D also plays back ATRAC3 Audio, supports MP3, WMA and WAV, and is supplied with Music Management Software for creating music mixes for transfer at super fast speed. Plus - the Skip-Proof Design (No Moving Parts) keeps your music playing smoothly despite your active lifestyle. Take your digital music to go with the NW-MS70D.

## **Product Evaluation**

### ***Product Design Issues for Evaluation***

As an avid music listener and gadget fanatic I am in a great position to evaluate this product but I cannot just rely on my own opinions. From initial research on the internet, experience of other personal music players and discussions with my friends I have decided that the main design issues to be evaluated are:

- Function & performance
- Ergonomics
- Aesthetics (including market niche, style and fashion)
- Materials and manufacture
- Value for money
- Safety

### ***Function***

The primary function of a small music player is to provide reliable quality music on the move. This means that the sound quality must be good enough to be enjoyable above the every day sound e.g. traffic, people conversation and children playing. Additionally it must be 'jog proof' or anti-skip where the music tracks do not jump like using vinyl or cheap CD players. It should also be easy to change tracks or find a specific piece of music. Putting this all together means that the primary function of sound reproduction has to be evaluated. This primary function is closely related to performance and portability which are essential secondary functions. Other secondary functions of operation and use will be touched upon in general terms and software use but I will examine anthropometrics and other ergonomics issues under Ergonomics later.

It is clear that the issues to be evaluated under function are:

- Music quality
- Portability – size, weight, etc.
- Stability – skip-proof
- Loading music – software, file support, transfer time, etc.
- Changing/selecting music

These design issues will really evaluate the 'fitness for purpose' of the product.

### ***Ergonomics***

As mentioned under function, ergonomics has a big part to play in importance for this product. The controls should be easy to operate in terms of finger and hand size. Any digital or text display should be easy to read. The earphones or headphones should fit comfortably in or on the ears (anthropometrics) and the sound should not damage the user's hearing (sound levels). When looking at the age range of people that will use this type of product, it is clear that this is widening as recent research shows that people over forty are the biggest purchasers of recorded music. I will consider a range of people from teenagers to perhaps sixty. The overall handling of the Walkman should 'feel good' and be positive so that people will want to use and own it. The actual use should be intuitive and easy to remember as people do not like to look at instructions (psychology). With the low weight and lightweight controls

## **Product Evaluation**

physiology should not be a big issue but will be covered under ease of use of controls.

Issues to be evaluated under Ergonomics are:

- Size and use of controls (intuitive/easy)
- Display clarity
- Size and comfort of earphones and headphones
- Sound level control
- Feel good factor – handling

### ***Aesthetics***

This is a lifestyle product and attempts to be a “must have” item. Therefore looks and style (aesthetics) are all important. If a product does not attract the eye of a potential buyer then its possible superb function may mean nothing. These aesthetics issues are of course linked to the materials used and the Network Walkman could score highly with its titanium casing and its obvious Sony progressive style. The modern colour, texture, shape and form of this product are crucial to its success and these must be evaluated.

As a lifestyle product it must have kudos for those in possession in terms of style and of course performance as mentioned earlier.

The issues to be evaluated here are:

- Style
- Colour/texture
- Shape and form
- Wow factor (kudos, lifestyle, must have, etc.)

### ***Materials and Manufacture***

As mentioned above, materials have a big impact on the aesthetics and this relationship will be evaluated. As a portable product the materials and manufacture would have to withstand a fair amount of knocks including being dropped so durability has to be considered although I cannot take it to the limit and destroy it. The life expectancy of the components and movable parts will be considered as these may well be the most vulnerable (switches and memory stick aperture). Perhaps some parts can be replaced?

I intend to evaluate the following:

- Main body materials and manufacture
- Durability
- Switch protection/potential
- Memory stick aperture
- Components e.g. headphones

## **Product Evaluation**

### ***Value for Money***

Value for money is very important nowadays. Why over pay for a product when it offers poorer performance, short lifespan or has fewer features? It has to be a balancing act between these issues to get the best value. A more expensive product such as this Walkman has to offer more features and better performance or even better style to make it worth it. This value for money issues has obvious links to performance and this is where the main evaluation will take place.

I intend to look at and evaluate:

- The price in comparison with other similar products
- Features for your money
- Reliability and longevity
- Style for your money

### ***Safety***

Safety is always an issue especially in terms of plugging into mains electricity. Other considerations are sound level control to avoid ear or hearing damage (see ergonomics above) and the quality of manufacture to avoid cuts especially when some part are manufactured in titanium (see materials and manufacture above).

There are three areas for evaluation with regard to safety:

- Electrical safety in recharging
- Volume control
- Quality of manufacture in terms of safety.

## **Evaluation Strategy**

I intend to use three methods in evaluating the Network Walkman.

### ***Internet***

I intend to use the internet for two purposes:

- Find other people's reviews of the product to aid my evaluation in function and performance, portability and any other relevant issue that arises.
- Carry out a product comparison for like products e.g. Apple iPod, Creative Nomad Jukebox 2 and Archos Jukebox Studio 20.

## Product Evaluation

### ***User Trial/Survey***

I intend to make up a survey form based on the issues that I have identified earlier. I hope to make five levels of response rather than just a rating. The rating marks would be added later and presented in a graph.

Example: Tick the most appropriate box.

	5	4	3	2	1
<b>Aesthetics</b>	Brilliant	Pretty Good	Okay	Bearable	Out of it
What do you think of the overall style and image of the Network Walkman?					

I would use this user trial on about 5 people of different ages and base it on function, ergonomics, aesthetics and value for money as detailed below.

### **Function**

- Music quality
- Changing/selecting music
- Loading music – software, file support, transfer time, etc
- Portability – size, weight, skip-proof etc

### **Ergonomics**

- Size and use of controls (intuitive/easy)
- Display clarity
- Size and comfort of earphones and headphones
- Feel good factor – handling

### **Aesthetics**

- Style
- Colour/texture/shape
- Wow factor (kudos, lifestyle, must have, etc.)

### **Value for Money**

- Purchase price - £200

### ***Observation/Examination/Testing***

I intend to carry out a product analysis to evaluate the issues of materials, manufacture and safety. I do not intend or want to carry out destructive testing so I will have to make judgements based on previous knowledge and further research.

### ***Conclusion/Final Evaluation***

I intend to summarise the information gathered and investigated during the evaluation activities into an overall conclusion. This will include the other value for money issues not covered elsewhere.

# Internet Reviews

## ZDNet

### Design

*Small and sleek* is the best way to describe the NW-MS70D. Measuring 1.44 by 1.94 by 0.72 inches and weighing just 1.9 ounces, this 256MB titanium sliver of a digital-music player is much more diminutive than most of the competition. But its tiny size doesn't cause big usability problems, thanks to solid construction and a clever design.

For example, you slide the long bar running across the unit to lock the controls. Pulling out the Shuttle switch on the right side enables you to move between groups of songs, which comes in handy when you're wading through long lists. Even the tiny, spring-loaded door covering the memory-expansion slot on the bottom feels durable.

The headphone cord is a little short for our taste, but Sony was wise enough to provide an extension so that you can listen while carrying the player in a pocket or a bag. Most likely, you'll use the short cable at the gym and the extension everywhere else.

A cradle makes USB connection quicker and simpler; it also charges the battery.

### Features

The NW-MS70D comes with all the standards you expect from a portable audio player, but don't expect any extras. You get repeat and shuffle, bass boost, and an equalizer. A playlist-style function for grouping songs in folders helps you organize music into sets, and a four-mode LCD makes all the features easy to use.

Like Sony's earlier Network Walkmans, the NW-MS70D requires you to convert your MP3 and WMA files to Sony's proprietary ATRAC3 format. The included SonicStage OpenMG jukebox software *checks out* a non-ATRAC3 song to the NW-MS70D by converting it and storing the converted file on the player--and on your computer, cluttering your hard drive. The program can also rip CDs directly to ATRAC3; that approach bypasses the conversion process and results in better sound since the music gets encoded by only one codec.

SonicStage allows you to check out a song up to three times before you have to check it back in from the player, after which the song will again be available for transfer. And when you're selecting files to transfer from your hard drive, SonicStage doesn't tell you how much space they will occupy on the device, only the total size of the current playlist.

These annoyances are somewhat mitigated by the fact that the unit also works with RealOne Player. During checkout, RealOne Player can delete the ATRAC3 files from your hard drive immediately after song transfer, and it offers one-click deletion of all archived ATRAC3 files so that you can free up disk space. The MP3 or WMA versions will remain, but if you want to check out those songs again, you'll have to reconvert them. RealOne Player also provides more information about the NW-MS70D's available space. So even though SonicStage checked out songs faster (see the Performance section) and--unlike RealOne Player--can rip CDs directly to ATRAC3, we preferred RealOne Player for song transfer.

The device's 256MB of internal flash memory is ample, especially for such a small player, and you can expand the memory with a Memory Stick Duo.

## Product Evaluation

### Performance

The NW-MS70D's two bass-boosting levels are wonderful, and the earbuds are surprisingly responsive to low- and high-frequency acoustics, although their midrange is somewhat muted. As you'd expect, the unit sounded even better through our over-the-ear test headphones.

We were also impressed with the battery life, which came in at 40 continuous hours, easily beating the rated 33 hours--a possible first. It takes about 90 minutes to charge the battery via the USB cradle.

The only real downside, as we mentioned in the Features section, is that ATRAC3 conversion significantly slows file transfer and slightly degrades sound quality. With RealOne Player, MP3-file transfer (including conversion) occurred at 0.1MB per second. SonicStage improved that rate to an almost respectable 0.27MB per second; that's much faster than the NW-MS11's transfer speed but still slower than that of most other flash players. The speed increases, of course, when you check out files already in ATRAC3 format; both SonicStage and RealOne Player achieved a decent rate of 0.5MB per second.

If you don't mind slow song transfer, or if you're planning to create a new digital-music collection from CDs, the NW-MS70D has a lot going for it. But if you already have a lot of MP3 and WMA files, you're probably better off with a player that doesn't require you to convert them to a new format.



# Excellent player let down by Sony's Software

A review by Beamo on Sony Network Walkman NW-MS70D

September 3rd, 2003

**Author's product rating:** ★★☆☆☆

**Sound Quality**      Excellent - 5

**Ease of Use**        Difficult - 2

**Look & Design**    Good - 4

**Range of Features** Limited - 2

**Value for Money**   Poor - 2

**Pros:**    Excellent sound quality. Good build

**Cons:**    Restriction on transfer of songs, poor docking station

**Recommend to potential buyers:**    no

The first impression of Sony's latest mp3 is of how small and well built the unit is. It measures about the same as a pack of matches and is just over 50g in weight.

The software was easy to install and very clear and simple to follow. Only when the software was up and running did the problems begin...

First off Sony uses its own ATRAC file system and although you can use mp3 and WMA files you have to go through an unnecessary and complicated conversion program.

Once you have your files stored within the software's library you can then transfer them to the player which sits in the neat little cradle. Unfortunately the transfer continually cut out and it would take several attempts to get all the files across.

Worse still is the fact that you can only check in/out each file a maximum of three times and only to the computer they originate from. This means you have to re-rip your CD's if you want to listen to them more than 3 times. I can understand Sony wanting to protect the copyright of artists but this is quite simply ridiculous.

When you consider that the cost of the unit with additional memory is over £300 then it would be fair to assume that buyers could afford the cost of CD's and most would use legitimate files and that Sony has adopted a big brother attitude towards copyright and taken away the shine on what could have been an excellent player.

## Gotta get one of these

A review by suffol on Sony Network Walkman NW-MS70D  
March 24th, 2003

**Author's product rating:** ★★★★★

<b>Sound Quality</b>	Good - 4
<b>Ease of Use</b>	Very Easy - 5
<b>Look &amp; Design</b>	Excellent - 5
<b>Range of Features</b>	Diverse - 4
<b>Value for Money</b>	Satisfactory - 3

**Pros:** Looks, battery life, music capacity, functionality

**Cons:** expensive, USB1 only, clunky PC interface

**Recommend to potential buyers:** yes

Saw this one advertised (new on the market just this month), and just had to get it. £250 and five days on, I don't regret it, not one little bit.

This has to be (easily) the best flash memory MP3 (Okay, ATRAC3) player on the market now. Sony uses the ATRAC3 codec because they reckon you get cd-quality sound in much less filespace than the equivalent MP3 codec. My experience so far bears this out, but it does mean that you have to go through a conversion process, via a software interface, rather than just drag-and-drop.

Out of the box the looks are initially a little quirky, but you quickly come to realise that each part of the little beauty does its bit, and the arrangement of controls means that you never need to look at it to operate the unit. Also, when you sling it around your neck on the clever little neckband-headphone thingy, its looks make it appear to be some kind of hi-tec adornment. Lovely brushed metal titanium body, smooth and seductive, will last and last. Nice dual-colour display.

It's just incredibly small for something that'll hold 11 hours of music (plus another 6+ hours if you spend more on a memory stick to go inside it). The sound, too, is extremely good, with treble and bass you can set, and two separate customisable sound presets. It advertises an amazing 33 hours from a single (fast) charge, and I'm well over 25 hours with no drop in performance. I had it loaded up with music within an hour of opening the box, and it's rarely left my person ever since.

I can't recommend it highly enough; it knocks spots off my previous Diamond Rio 60, Archos Multimedia Jukebox, and Neo Jukebox. I normally suffer badly from post-purchase dissatisfaction (normally at the point when I'm looking at my credit-card statement the month following!), but absolutely won't with this one. Indeed, I'm found cradling it lovingly in meetings when not even listening to it, just for the tactile pleasure of that smooth titanium....

See it and you'll love it. No, I don't work for Sony. Gripes? No USB2, but the music transfers quite quickly anyway. It'll even hold non-music files as a kind of super-floppy for transfer between computers. The software interface isn't the easiest (I prefer drag and drop through Windows which it undoubtedly isn't), but I mastered it fairly quickly. See this, buy this! Shop around, as you should get it at less than the RRP (£299) if you try.

## Product Evaluation

# The world's smallest MP3 player

A review by inyourcage on Sony Network Walkman NW-MS70D  
October 22nd, 2003

**Author's product rating:** ★★★★★

**Sound Quality**      Good - 4  
**Ease of Use**        Very Easy - 5  
**Look & Design**    Excellent - 5  
**Range of Features** Average - 3  
**Value for Money**   Satisfactory - 3

**Pros:**    small, handy, ten albums in one

**Cons:**    none

**Recommend to potential buyers:**    yes

At the cutting edge of technology providing ultimate style and portability, this is the Sony Network WALKMAN NW-MS70. The 256MB built-in flash memory provides approximately 12 hours of music storage in a unit that is under 5 cm tall! The additional new Memory Stick Duo(TM) compatibility gives even more hours of listening enjoyment and multi data formats can be stored. Also equipped with an attractive cradle that lets you charge the WALKMAN battery and connect to a PC. A high-tech fashion statement, this is NW-MS70!  
it includes -

Hybrid memory system.

Embedded 256 MB flash memory plus Memory Stick Duo(TM) slot

More than 10 CDs music into embedded flash memory with ATRAC3plus high quality sound compression

ATRAC3plus / ATRAC / MP3 / WMA / WAV compatibility

Full titanium body

Up to 33 hours battery life using supplied rechargeable battery

New USB charging cradle

Possible to charge via USB port in PC

Easy PC editing with supplied SonicStage® application software

Easy operation with Jog & Group function

This is for anyone who likes advanced technology and staying power!!!





## Summary

From these reviews the Walkman comes out rather well in most areas and is recommended apart from one review. This was mainly due to the software which restricted the copying of music. There does seem to be ways round this as set out in the ZDNet review. The other criticism is of course price but this has decreased to about £200 by now and should decrease more at time goes on.

The Walkman does score highly in other areas such as sound quality and style. I will take all this information into consideration for the final overall evaluation.

## Product Evaluation

### Product Comparison

	Network Walkman	Creative Nomad	Apple iPod	Archos Jukebox
				
Best Price (internet)	£199	£153	£263	£300
Storage/memory	256Mb + card	10Gb	40Gb	20Gb
Battery life	33 hours	16 hours	8 hours	8 Hours
Casing material	Titanium	Silver Plastic	White Plastic	Blue/silver plastic & metal
Size (mm)	48.5 x 36.4 x 18.0	123 x 32 x 13	104 x 61 x 18	115 x 83 x 34
Weight (g)	54	249	176	350
Platform	Windows 98+	Windows 98+	Mac Os10.1.5 or later & Windows 2000+	Windows 98+
Interface	USB	USB 2	High Speed USB & Firewire	USB
Power Source	Mains charger	Mains charger	Mains Charger	4 x AAA batteries
Mb per £	1.3 (3.9)	65.1	152	67

It is clear from the Mb per £ that the Walkman is a bad deal except that you can buy unlimited memory sticks which typically cost £33 on-line. This equates to 3.9 Mb per £.

From this part of the evaluation the Mb per pound favours the iPod and shows the Walkman as expensive but when we look at size and weight the Walkman comes out best. It is necessary to consider these issues along with the other parts of the evaluation to judge other design issues such as sound quality, ease of use, style, etc.

## Product Evaluation

### User Trial/Survey

Please respond to the following questions in relation to the Sony Network Walkman.

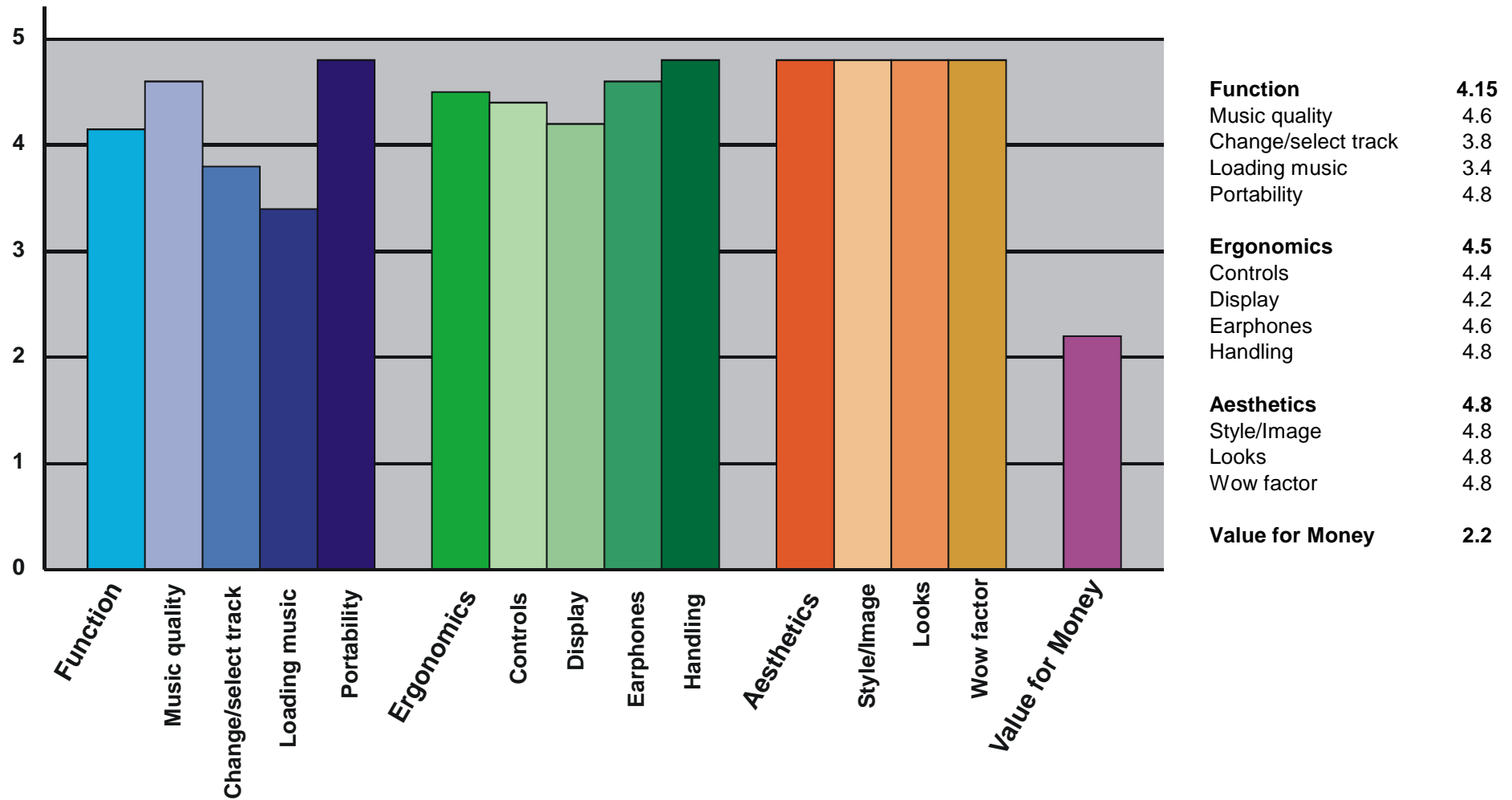
Circle the number which you think matches your opinion

	Brilliant	Pretty Good	Okay	Bearable	Out of it
<b>Functionality</b>					
Music Quality – volume/bass	5	4	3	2	1
Change or find a song or track	5	4	3	2	1
Loading music from PC – using software	5	4	3	2	1
Portability – size/weight/skip proof	5	4	3	2	1
<b>Ease of use</b>					
Controls – size, easy to use, location.	5	4	3	2	1
Display – clarity and usefulness	5	4	3	2	1
Earphones – size and comfort	5	4	3	2	1
Handling – feel good and comfortable in use	5	4	3	2	1
<b>Looks</b>					
Style and Image of the Walkman	5	4	3	2	1
Looks – colour, texture and shape	5	4	3	2	1
Wow factor – a must have?	5	4	3	2	1
<b>Value for Money</b>					
Purchase price - £200	5	4	3	2	1

## Product Evaluation

### User Trial/Survey Results

I have collated the results of my five person survey:

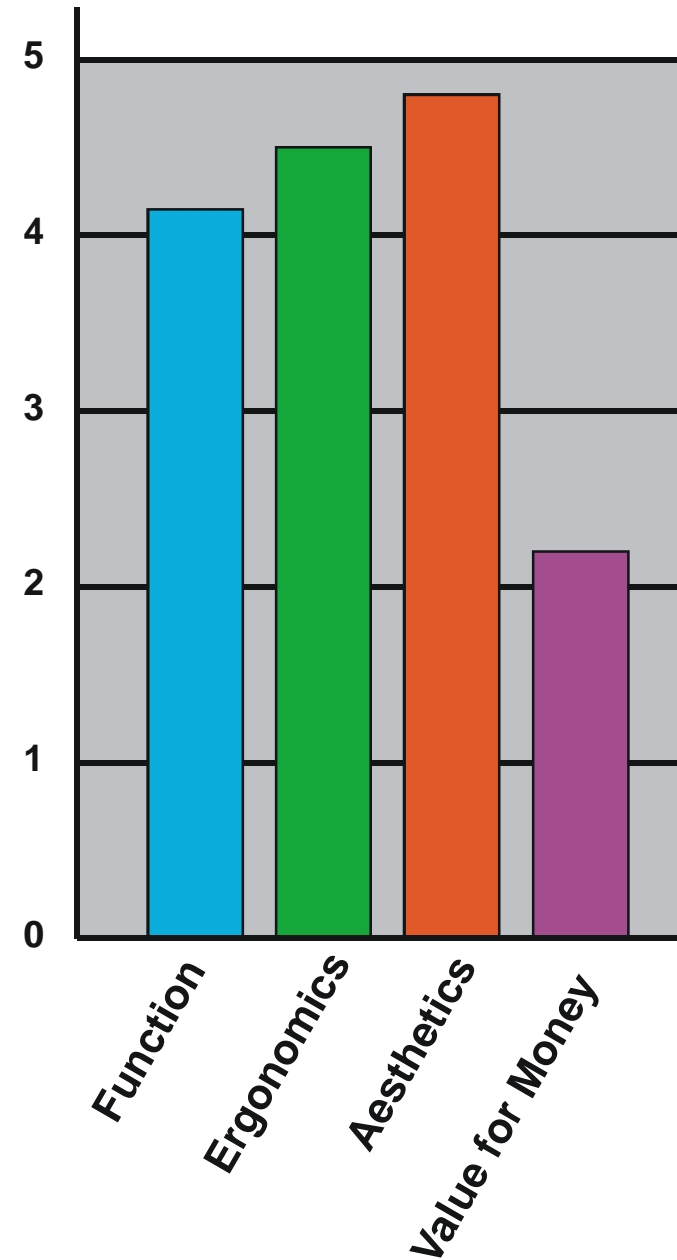


## Product Evaluation

### Summary of Results

The previous detailed graph and the summary graph show that the walkman scores high in all categories except cost.

This is in-line with the other information gained so far. I will use this information in the final evaluation.





### Product Analysis

#### Materials and Manufacture

You expect the materials and manufacturing of an expensive Sony product to be first class and there is no disappointment with the Network Walkman. The scratch proof titanium body shell is tough and well finished. This casing has been pressed and folded in such a way to hide the seams with the 'hold' bar. The hold bar is chrome plated steel which not only hides the seams but protects the switches and enables the Walkman to sit comfortably in the hand. The switches are made of plastic (probably injection moulded) and are of good quality and extremely well finished – no sign of any processing.



#### Value for Money

When I compared the prices of similar products earlier the Sony came out well in overall price but did rather worse in Mb per pound. What the Walkman did do well on in the user trials is the style and 'wantability'. The quality of materials and manufacture in the Walkman is very high and this has to be considered in the value for money stakes. To this we can add the portability which outstrips the competition.

So what we have in Value for Money terms is:

- Comparably price in comparison with other similar products but low Mb per £
- Good features for your money
- Proven reliability and longevity of expensive Sony products
- Quality materials and manufacture
- All the style you want for your money.

## Product Evaluation

### Safety

When analysing the safety issues I found no problems:

- No compromise on safety in regard to recharging from the mains. In the cradle used for recharging and downloading there is no high voltage as this is transformed to 14.5 Volts and these are not accessible. The transformer carries the CE symbol for safety.
- The volume control is limited to avoid damage to hearing. The volume can also be limited with a special AVLS control
- The quality of manufacture in terms of safety is of top quality. The Walkman is finished to a very high standard.

### Summary

It is clear from the evidence that I have collected and evaluated that the Sony Network Walkman is a very modern desirable product. The internet evaluation rated the product very highly in terms of sound quality, ease of use, look & design and range of features but did not do as well in value for money. One of the internet reviews did not recommend the product due to connection software issues and the high price. The others did not have the same strong views and did recommend the Walkman. The ZDNet review was the most comprehensive and did offer alternative solutions to the software issues. In my comparison with similar product exercise I found the Walkman comparable in price but poor when I looked at Mb per pound.

My user trail reflected views expressed in the internet reviews. The price was a bit high but the style, quality and 'wantability' of the Walkman were very highly rated.

In my product analysis the quality of the materials and manufacturing was very high. This view backed up these expressed in some parts of the Internet reviews e.g. "Lovely brushed metal titanium body, smooth and seductive, will last and last".

When looking at Value for Money across the various evaluation exercises, it is clear that the Walkman is expensive but you get a high quality product and great sound quality which makes the Sony Network Walkman a very desirable product – I am glad I have one.