

APPLE II MONITORS — THE ANTI-GLARE EXPERIENCE

Non-glare or reflective?

USA & international models compared



Monitor IIc is a green phosphor monochrome CRT display introduced in 1984 by Apple Computer. Its stylish look and sleek lines make it the perfect complement to the iconic and beloved Apple IIc computer.

All versions of Apple's **Monitor IIc** — both USA & international models — feature an *etched, non-glare surface* as standard, designed to minimize reflected ambient light for a more comfortable, ergonomic viewing experience.



A torchlight test clearly reveals the difference between an anti-glare monitor, the Apple **Monitor IIc** (→ [Euro model A2M4090Z/G091S](#)) with its diffuse reflections versus an "untreated" display, the **Amstrad GT 64** with highly reflective surface (resembling polished mirror)



Not all variants of the Monitor IIc are created equal!

Those units bearing a **specific European certification, namely "TÜV Rheinland"**, are anti-glare to a high degree. All USA models and any international variants lacking TÜV approval are also anti-glare though not necessarily to the same extent.



The high-resolution photos below compare the **light reflectivity** of *two variants of the Monitor IIc* — [A2M4090X/G091H](#) & [A2M4090X/G092S](#) — made to measure for southern magnetic hemisphere and sold mainly in Australia & New Zealand. Rated for either 240V or 220/240V, they give an optimal (stable, full-size) picture with 50Hz composite video signal (*60Hz appears vertically squashed and down-shifted*). The G091H lacks certifications of any kind

but the G092S sports European approvals TÜV Rheinland and "f" 871-B. The G092S certainly has the stronger anti-glare spec, with reflections rendered especially dull and indistinct on its glass surface.

Apple Monitor IIc

Model: A2M4090X/G091H (manufactured Hitachi, Taiwan)

240V~

No RIFA capacitors

Certifications: None

ANTI-GLARE (moderate)



Apple Monitor IIc

Model: A2M4090X/G092S (manufactured Samsung, Korea)

220-240V~

Infamous RIFA exploding capacitors!

Certifications: TÜV Rheinland & "f" 871-B

ANTI-GLARE (strong)



Reflected window



Reflected torchlight



Reflected spotlight



Reflected LED wand



The G091H (above left) with its more moderate anti-glare facing, may be comparable in this respect to the 115V Monitor IIc (A2M4090) sold in North America (this is speculative as I don't have one of those on hand to test)

The U.S. had no mandatory ergonomic specifications and UL, FCC, and CSA standards did not require anti-glare facing so it was solely at the manufacturer's discretion...



A rare Canadian-only variant of the 115V *Monitor IIc* (A2M4090C) also exists, though I'm unclear how, if at all, it differs from the much more prevalent A2M4090



In Europe, you might encounter several variants of the Monitor IIc — most are rated for 220/240 volts (like the common, pan-European [A2M4090Z](#)) but some rarer being 240V only. The [A2M4090B/G092H \(240V\)](#) lacks certifications of any kind yet the [A2M4090B/G092S \(220/240V\)](#) meets both TÜV Rheinland and "f" 871-B standards and presumably has more stringent anti-glare qualities to boot.

The 220/240V beige *Apple Monitor II* (A2M2010P) — a widespread green phosphor CRT sold in Europe, Australia, etc. (*both hemispheres!*) and usually bundled with the Apple IIe — had at least two variants, *one with* and *one lacking* the TÜV Rheinland badge of honour. The platinum-coloured revisions, sold from 1987 under the new name "*Apple Monochrome Monitor IIe*", all appear to meet the TÜV standard (→ [A2M6017Z](#) & [A2M6017X](#)).

It's worth emphasizing that *all* monochrome monitors made by Apple for the Apple II series are "anti-glare" or "non-glare" and were promoted as such, viz. the North American & international *Monitor IIc* (green phosphor), all versions of the *Monitor II* & *Apple Monochrome Monitor IIe* (green phosphor), *Apple Monochrome Monitor* (white phosphor) as well as the *Apple IIc Flat Panel Display*. However, any CRT monitor brandishing a TÜV Rheinland certification is probably anti-glare to a *higher degree*.

The anti-glare situation with Apple's *colour monitors* for the Apple II is interesting to ponder. Their first such monitor, the *AppleColor Monitor 100 (RGB)* was a non-glare model, and only saw release in America.



Yet in an apparent change of heart, all their subsequent Apple II colour offerings — i.e. the *ColorMonitor IIe/IIc*, *AppleColor Composite Monitor IIe/IIc* and the *AppleColor RGB Monitor (IIgs)* — feature highly reflective screens that lack any form of anti-glare. These models were released in North America, Australia and New Zealand.

"Apple decided that the anti-glare facing detracted from the sharpness of the image on color monitors, and so specified that the anti-glare not be placed on the color monitors except in those countries where required." †

Well what of the situation in Europe? Sadly, the release of the AppleColor composite monitors appears to have been cancelled there (*despite the ColorMonitor IIe/IIc manual having being translated to major European languages* → [PDF scan](#))

The *AppleColor RGB Monitor* for the Apple IIgs was released in a 220-volt European model ([A2M6014Z](#)). However due to German "VDE" regulatory requirement, this model is distinctive for having an anti-glare screen! It's the only variant of the *AppleColor RGB Monitor* with TÜV Rheinland certification



→ more A2M6014Z photos [HERE](#) and comparison with the "full-glare" A2M6014X - the AUS/N.Z. 240-volt model → [HERE](#) & [HERE](#)

FURTHER READING

- [AppleColor RGB Monitors: No Anti-Glare Facing for U.S. Models \(1988 Apple Tech Info article\)](#).[†]

"Current testing of the European monitors is done to meet the DIN 67530 standard... Apple does not know of any U.S. agencies currently working on an ergonomic specification of this type... The U.S. versions of the color monitors for the Macintosh II and the Apple IIGS do NOT have an anti-glare facing. UL, FCC, and CSA standards do not require such facing."

- [Apple Hardware: International Certification Information \(1992 Apple Tech Info article\)](#).

"Macintosh II monitors are built specifically for Germany to meet the VDE 0871 certification. Domestic (US) Mac II monitors do NOT carry the VDE certification label."

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