

Chiaki Ishikawa:

This is the transcription of the hand-written memo (No-2-Hand-drawn-memo-VFD-byCI-Scan.pdf) WITH additional editing. [I edited this further after I sent an initial copy to the advocate.]

So they don't correspond to the hand-written memo in a one-to-one manner.

Generally speaking, I am afraid many description of historical facts lack historical references.

I pointed out some in my comments in the scribbling in the printed pages and here.

But the proposers ought to check every description to try to give a proper reference to the sentence to give the statement a solid evidence. This is very true of development in Japan because overseas reviewers and readers are not familiar with what happened in Japan in 1970s and 1980s.

The page number refers to the printed page number in my printed file

No-1-Review-directly-written-in-VFD-by-CI.pdf

Page 1.

Commercialize → mass-produced

Calculator boom → OK (I can't think of a better phrase.)

Calculator wars

→ Cutthroat competition in the Japanese calculator market, which some called "calculator wars".

Frontier sprit

Cooperative → cooperative sprit

Is there evidence given? → YES in 4.4

Egg of Columbus's (?)

→ A bit overblown (to my taste. Maybe it can be removed from the description.)

Viewing the display upside down ←- Wrong!

→(rewrite and the suggestion is as follows.) viewing in the opposite direction (from the cathode side) in comparison to the conventional CRT (viewed from the anode side).

... There is a hand-drawn diagram. ... A simple diagram will help here to understand what is discussed here.

Page 2.

n/a

Page 3.

gaining international recognition → evidence ?

research paths → research career?

Nixie tube visibility issues

→ (are these) mentioned elsewhere?

Comparative PHOTOS (of Nixie) tubes would be nice.

Patent fees → to whom? (Should be mentioned explicitly here in the main text).

Aiming to contribute to local development as well.

→ Meaning unclear(?) (maybe “local” should be replaced with “regional”?)

The earliest VFDs : Were these created by Dr. Nakamura?

Maybe Mr. Okubo created them?

(The timeline is) unclear concerning the few sentences here.

(Please clarify!)

Lower voltage → lower THAN WHAT ?

Furthermore, he knew ... as with CRT.

→ (Again) a simple diagram will be desirable.

Hand-drawn diagram.

From the main text, I checked the reference [P1] patent diagram.

[P1]

(advantages)

- Low voltage, 25 V IC, transistor
- same plane for all the symbols
- Clear and precise (← character forming elements)

vs.

Nixie

Symbols at different depth.

(advantages) These points are discussed in 6. Good.

There's a typo ! (in the patent document! Figure 25 should read Figure 35 in one place!)

I skip the parent document [P1]. P1-2, P1-3, P1-4.

Page 3 continued

Fig.1 (Please) separate the datasheet so that we can read. (Currently it is) too small.

Establishment of what ??? (The company or what?)

Page 4

Central Research Laboratories OF WHAT??? DURING VENTURE STAGE??? State clearly

Frontier (capitalized) → frontier (lower case) I think this appears somewhere else, too.

cooperative → cooperative spirit I think this appears somewhere else, too.

international partners → (give us) evidence.

[A1], [A2] link on the application page does not work.

[A1] A short description of SID would be desirable.

[A2] A short description of K. F. Braun Award would be desirable.

Page 4 continued

the patent fees for Nixie tubes TO WHOM (write in the main text!)

during calculator wars → (a bit overblown)

in the very competitive Japanese calculator market

...

[O3] is mentioned, and I found a rather confusing description of Mr. Okubo being mentioned as the inventor of VFD. (So I take Dr. Nakamura is the pioneer in MASS-PRODUCTION and LATER POLISHING of VFDs. Correct?)

There is a grave typo:

CASIO calculator mentioned as having single digit(s) rather than SIX (6) digits which it had.

VFD Structure paragraph:

the viewing of VFD from the grid side as opposite the anode of side of CRT should be mentioned. Move the last sentence in the next paragraph to the earlier paragraph.

I skip Ref [2] pages. I just wrote my own comments to understand the structure of multi row display.

Page 5

Again, I did not bother to point out EVERY PLACE where proper reference is needed, but the proposers ought to give a reference to back up the sentences.

Figure 3.

Please state WHEN they were developed.

Automotive meters

It will be nice to have REFERENCES to give credibility to the description

- Subaru

- Prius cars.

(Evidence is important in IEEE Milestone).

Game machine.

Nice to have references to the description of game machines here.

“???” low-speed excitation This does not make sense for a game machine. Does it?

→ high-speed ??? OR
low latency

Digital Signage:

Give reference to Izu Kyoko 8000 series tarins.

Large Display

Is Sony’s work VFD? State clearly (because I don’t think SONY has been a licensee of VFD technology from the description in the proposal. If it is, mention this somewhere.

(For that matter is Mitsubishi Electric a licensee of VFD technology? It is not mentioned as such. Please state so if that is the case.)

The proposer might want to give the list of licences of VFD technologies to show the “cooperative” spirit, maybe?

Page 6.

Production consignment agreements (WHAT?)

→ production agreement is much better.

Enterprise names are not spelled fully. I think it is better to spell them in full. (Check other names, too, please.)

Japan Electronic Materials → Japan Electronic Materials Corporation

Dai Nippon Toryo → Dai Nippon Toryo Co., Ltd.

“Professor Takagi at Faculty of Engineering, Shizuoka University” should be the proper quotation of his title.

Nice to have a reference to these activities.

Page 7.

Low-temperature-fired → -heated ?

Optimizing firing → heating?

not flat

→ Add something like

digits of 1, 2, 3., etc. were shown at different depths.

cf. Readers in 21st century may not understand what “flat” means.

Monsanto MAN-1-A: When did it appear? Cite a reference.

This is considered the world’s first production quality seven segment display element. So a reference is in order.

Some references are missing. (This is true throughout the proposal. This is a shortcoming of this proposal.)

Page 8.

NHK’s development – cite a reference

Where are VFDs used today?

Mentioning them is a good idea.

- > For one, Sumida Aquarium in Fig 6 seems to be today’s application. Why not mention it and other examples?

References.

(I mentioned these already):

[A1] A short description of SID would be desirable.

[A2] A short description of K. F. Braun Award would be desirable.

Page 9

Pressure ← incorrect. (There are some incorrect usage of “pressure” here.)

on the same plane AT THE SAME DEPTH (please add)

“Life” → “Life span”

Compet-16 → Compet 16 (CS-16 elsewhere in this proposal)

On the same plane ...

→ It also has features such as the ease of reading because all the digits are shown at the same depth (rewrite in a similar manner)_

Page 10

Tegitron → Digitron

This line → this approach

a separate display tube → separate display tubes

[end of memo]