

**Reduction of thickness of steel strip applied for Inner Magnetic Shields (of CRT)
manufacturing from 0,15mm to 0,1 mm.**

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We report using thin steel strip (0,1mm) for manufacturing Inner Magnetic Shield of CRT. Here we report that the reducing of steel strip thickness from 0,15mm to 0,1mm is possible as for one-piece IMS and for two-piece IMS without any reflection on quality of CRT. Also we report about advantages, which the producer of CRT could reach using steel with lowed carbon content up to 0,0005% by mass.

To be presented in the CRT's

We would like to give an oral presentation at the conference.

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Abstract

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1. Steel for Inner Magnetic Shields.

At present almost all producers of CRT's manufacture IMS made of steel not thinner than 0,15mm.

The steel strip produced on Schelkovo Steel Works is successfully applied for Inner Magnetic Shields (of CRT) manufacturing with thickness 0,1mm, 0,15mm (also 0,2 for jumbo CRT's. It's necessary to notice, that the Inner Magnetic Shield which made of steel with thickness 0,1mm has nothing differs from the IMS which made of steel with thickness 0,15mm by the technical characteristics. This statement was confirmed with successful using the steel with thickness 0,1mm made by SSW both in pilot and in a batch production of kinescopes (CRT) with a diagonals up to 21". Steel strip with thickness 0,1mm in comparison with strip that has thickness 0,15mm as a protecting internal magnetic shield doesn't render some appreciable influence on quality of shielding against a magnetic field of Earth at a use of the same design (i.e. displacement of electron spots under influence of a magnetic field of Earth in both these events didn't differ).

Application of strip with thickness 0,1mm is possible as for "one-piece" and "two-piece" IMS. It's interesting that pilot "two-piece" IMS were successfully made with steel 0,1mm for CRT's with diagonal 67cm. The necessary hardness to the "two-piece" IMS construction with thinner metal could be provided with additional stiffening ribs.

2. Advantages

Pilot CRT's were made on the JSC "VELT-K", Voronezh, Russia, which save one of the best scientific and engineering base worldwide. The following compensates any possible complexities with application of more thin material for the magnetic shield:

- 1) Economy in metal more than 30%, that caused reduction of the cost price at a batch production of CRT;
- 2) In case of batch producing energy economy is appreciably.

Add) Decrease of carbon content.

Except for set forth above, Schelkovo Steel Works produces steel with lower carbon content (up to 0,00053 % by mass). Such carbon content allows to cut down an additional magnetization of the inner magnetic shield. Reduction of the carbon content from 0,005 up to 0,00053 has allowed to reduce the slipping down of the electron spots in the top part of the screen up to 10 microns, using the "one-piece" IMS (involute from south to north). In connection with mentioned above not only color purity (basic fields and white color), at rotation of CRT in azimuthal Earth's field improving, also reserve of quality of CRT improving.