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University of Wisconsin-Madison

attn. Mr. Nobuyoshi Kitamura

Customer-No.:

Phone:
Fax:
Email:

Rossendorf, Aug. 29, 2003

Dear Mr. Kitamura :

Following your questionnaire as of Aug. 14 we answer as follows:

Copper shield

The first batch has been delivered with this shielding. The idea was to reduce influence of the the noise coming from the DC/D converter.to the output signal.
Since we could not measure any improvement, lets say we could not measure any influence on the output signal .Furtheron the shielding was a risk for short circuits to the pins of the DC/DC converter. Therefor we decided not to use the shielding.

Stacked surface-mount components

The compensation of the control circuitry became more complicated due to the splitting ground. Therefore additional components became necessary, which have been stacked mounted. In case of correct soldering this is no reason for less reliability. At the serie production nothing will be stacked.

Component Rating

The existing space for the components schematics 5549C021 was not big enough for the old capacitors. Therefore we took smaller and more expensive ones at the latest serie. The voltage withstand specification is absolutely good enough.

Component Placement

Without splitting ground we have much less components on board. Anyway, we are able to increase the distance of the PMT pads. .

Copper trace spacing

The distances of the copper traces are following the requirements of item 3.3.5 ERDv2.3.
The covering with HumiSeal after soldering the PMT leads is very good, because all high voltage stressed components are protected then.
At all places where soldering is not necessary the PCB has been covered with solder resist which is temperature and voltage resistive. This does not allow any normal soldering.

Output Kabel attachment

The inner isolation of the bare centre conductor is Teflon (PTFE). The isolation will not be damaged through soldering.

The small radius could be made better if the cable will be mounted flatly on the PCP.
For this idea it should be decided how to mount the cable.

First dynode voltage

600V DC has been set.

Voltage accuracy

The buffer amplifier has a big offset which obviously is not compensated.

Voltage stability

The setting voltage is too low in order to let the control circuitry _ which is responsible for the stabilisation for the first dynode voltage _ find the correct working point.

Due to the coupling capacitors between the splitting ground we unfortunately get unstable conditions.
An anode-cathode voltage > 1300V gives us stable condition also without a resistor..

Noise induced by ADC reads

During a read cycle the ADC takes remarkable more current and the clock slope is very fast.
Better blocking capacitors and an improvement of the clock line lay out will give us a decrease of cross talk.

We hope that our answers are sufficient to continue the co-operation

Looking forward to hearing from you again

Dr. Frank Gleisberg

Managing director

Rossendorf , Aug. 29, 2003.