Laser Classification

Model	**VQ-580**
Serial number	**S9997784**
Date of test	**25. Apr 2012**
Tested by	**HH/RP**

The classification is carried out according to the Standard EN60825-1:2001, "Safety of laser products - Part 1: Equipment classification, requirements and user's guide", equivalent to IEC 60825-1:2001.

The standard outlines conditions for the tests to be performed (Section 9.2, *"Measurements Measurement of laser radiation"*).

The diameters of the measurement apertures and measurement distances to be used for classification measurements are outlined in Table 10.

For scanned systems the standard states (9.3):

"For power and energy measurement of scanned laser radiation, the measurement apertures and distances as specified in table 10 for irradiance or radiant exposure shall be used."

Table 10 states for the wavelength range 400 nm to 1400 nm apertures of 7 mm and 50 mm for the stationary case and an aperture of 7 mm for scanned laser radiation.

The effective angle of acceptance for the detector is defined by (9.3.i) to be 100 mrad.

The time base for Laser Class 1 is 100 sec (8.4.e.ii).

Scanned laser radiation is defined in the standard (compare 3.74) as: *"Laser radiation having a time-varying direction, origin or pattern of propagation with respect to a stationary frame of reference."*

Parameters	
Wavelength	1064 nm
Pulse width	3,3 ns
Transmit Aperture	6 mm
Beam divergence (horizontal)	0,30 mrad
Time base	100 sec
Pulse repetition rate	50000 Hz
Effective pulses per scan	159 Hz
Line rate	10 Hz
Minimum angular increment	0,024°
Measured mean power (within 50 mm aperture)	312 mW
Measured mean power (within 7 mm aperture, 14 mm distance)	296 mW
Measured mean power (within 7 mm aperture, 100 mm distance)	296 mW
Measured mean power (within 7 mm aperture, scanned operation)	9 mW
Calculated pulse energy in 50 mm	6,2 µJ
Calculated pulse energy in 7 mm (14 mm distance)	5,9 µJ
Calculated pulse energy in 7mm (100 mm distance)	5,9 µJ