



Product Service

TUV Product Service Ltd, Octagon House, Concorde Way,
Segensworth North, Fareham, Hampshire PO15 5RL, United Kingdom
Tel: +44(0)1489 558100 Website: www.tuvps.co.uk



TEST HOUSE CERTIFICATE

CLIENT: Roke Manor Research Ltd. Roke Manor Romsey Hampshire, UK SO51 0ZN	CERTIFICATE NUMBER: RO614111-03 Issue 1 PROJECT NUMBER: RO614111 CLIENT'S ORDER NUMBER: 4100018927
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RFID Terminal Maximum Permitted Exposure (MPE) Calculations for Siemens RF660R RFID Reader

TEST ITEM(S):	Siemens RF660R RFID Reader & RF660A Antenna
REFERENCE DOCUMENT:	OET Bulletin 65 (Edition 97- 01) and Industry Canada RSS 102, section 2.2 with reference to the levels defined in Safety Code 6.
APPLICABLE LIMITS:	<p>'Appendix A' details the relevant exposure criteria in the above FCC Document. For the purposes of calculations on the RFID System the limits have been used which are applicable to General Population/Uncontrolled Exposure. The following limits are applicable:</p> <p>Over the 300 – 1500MHz range: $f/1500 \text{ mW/cm}^2$ equating power density levels: RFID operating at 902MHz: 0.601 mW/cm^2 RFID operating at 928MHz: 0.619 mW/cm^2</p> <p>Note: These limits are only applicable to operation of equipment in the far field. Calculations show that at RFID frequencies the far field is beyond a distance of 5.3 cm.</p>
RESULT(S) OF TEST	Compliance distance, R, at the permitted limit: RFID operating at 902 MHz: 23 cm RFID operating at 928 MHz: 23 cm

Approved by 

M Jenkins
Authorised Signatory

Date 1st November 2005

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CALCULATION OF POWER DENSITY

The RF power density S at an operational distance R from the antenna is calculated by the following expression:

$$S = \frac{P G}{4\pi R^2}$$

Therefore $R = \sqrt{\frac{P G}{4\pi S}}$

Where
S = power density in mW/cm²
P = power output in mW
G = antenna gain (numeric gain value)
R = operating distance from antenna in cm

Transmitted power: 1000 mW
Antenna gain: 4.0 (+6 dBi)

Compliance distance, R, at the permitted limit:

RFID operating at 902 MHz: 23 cm
RFID operating at 928 MHz: 23 cm

SUMMARY OF RESULTS

The RFID is within the FCC limits for General Population/Uncontrolled Exposure at a minimum operating distance of 23 cm.