1.1 RADIATED EMISSION DATA

1.1.1 Test Procedure (15.225)

The product has been tested according to ANSI C63.4-1992 and FCC PART15, Subpart C, Section 15.225.

The product has been tested with 230V / 50Hz power line voltage (requirements of §15.31 (e) are observed for found the worst case), at a distance of 3 meters from the antenna and compared to the FCC PART15, Subpart C, Section 15.225 limits. The radiated power output is 3W for all tests. Measurement bandwidth was 120 kHz from 30 MHz to 1 GHz, and 9kHz below 30 MHz. Requirements of 15.209e) have been observed.
Above 30MHz, antenna height search was performed from 1m to 4m for both horizontal and vertical polarization. Continuous linear turntable azimuth search was performed with 360 degrees range.

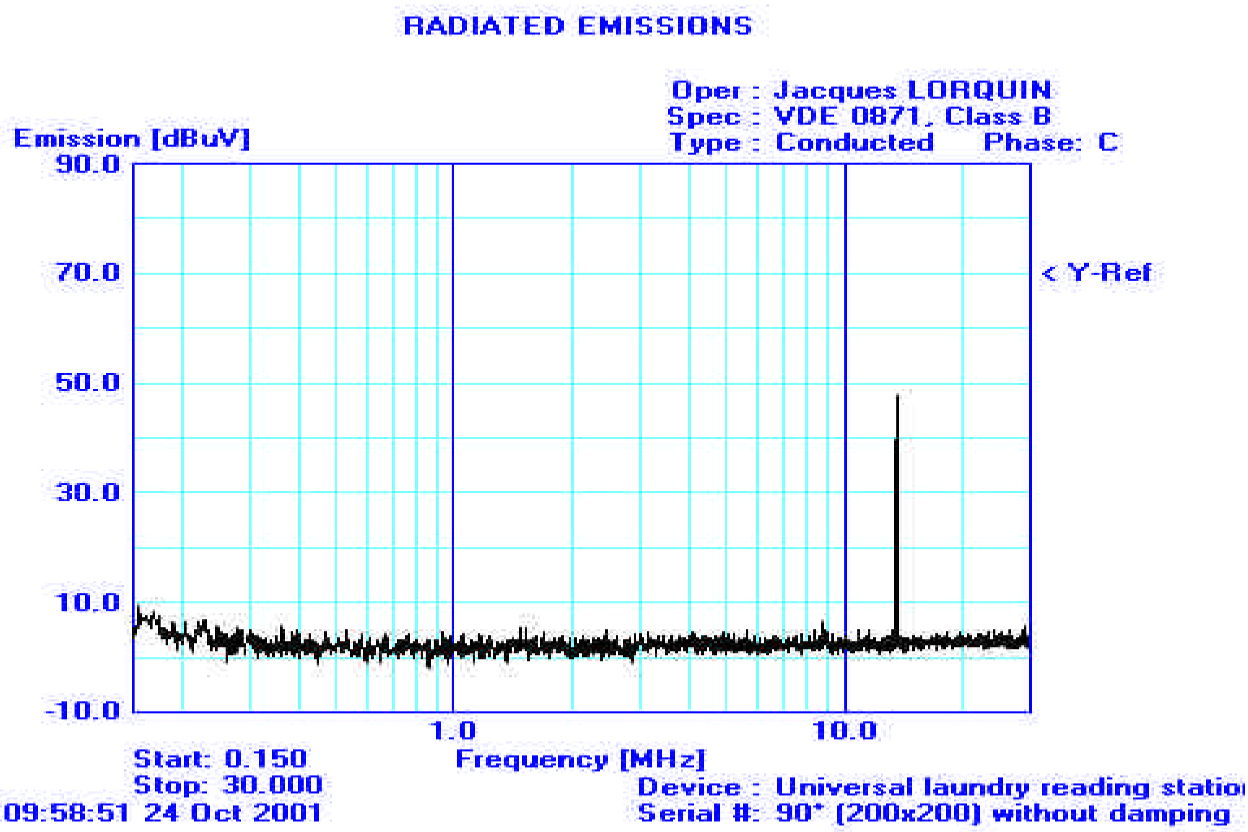
Below 30MHz, a loop antenna has been used in 2 polarization (axial and hortogonal), measurements distance was 10 meters. The average measure was compared to an extrapolated limit to 30 meters (requirement of §15.31)

Interconnecting cables and equipment's were moved to position that maximized emission. A summary of the worst case emissions found in all test configurations and modes is shown on the following page.

Test Equipment: HP-8574A E.M.I Receiver
HP-8568B Analyzer + HP-85650 Quasi-Peak adapter + HP-85685A RF Preselector.
EMCO 3104C Biconical Antenna & EMCO 3146 Log Periodic Antenna
EMCO-1050, 6 meters height antenna mast & EMCO-1060, 3 meters diameter Turntable.
HP-8591EM Spectrum analyser
CHASE CBL6111A Antenna, 30-1000MHz
SIDEN TELEC, Model CT2A, Loop Antenna

1.1.2 Radiated emission data for 200x200 antennas without damping

Final result below 30 MHz



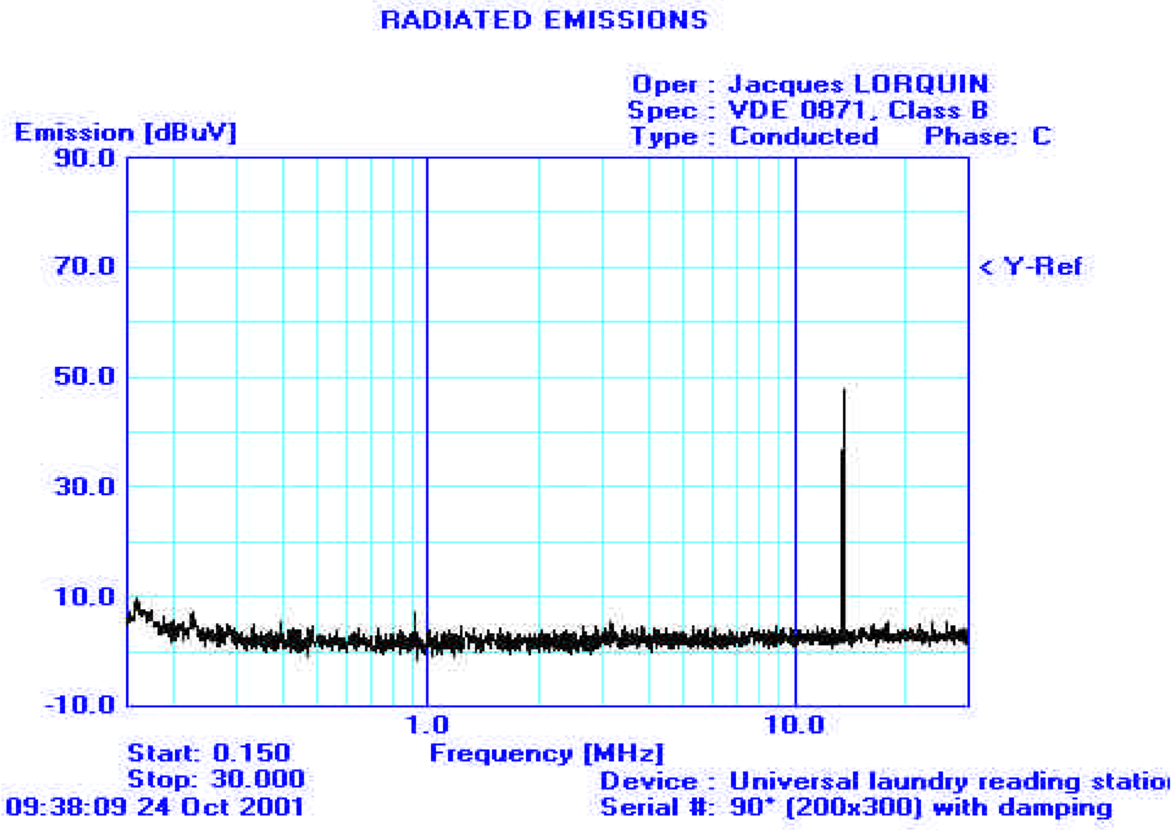
Graph example

Frequency (MHz)	QPeak Lmt (dBµV/m)	QPeak (dBµV/m)	QPeak-Lmt (dB)	Angle (deg)	Pol	Tot Corr (dB)
13.56*[1]	80	63.1	-16.9	130	hortogonal	36.4
27.12	39.5	Not traceable signal				

*[1]: Fundamental – 15.225 limits. Measure have been done at 10m distance and corrected following requirements of 15.209.e)

1.1.3 Radiated emission data for 300x200 antennas with damping

Final result below 30 MHz



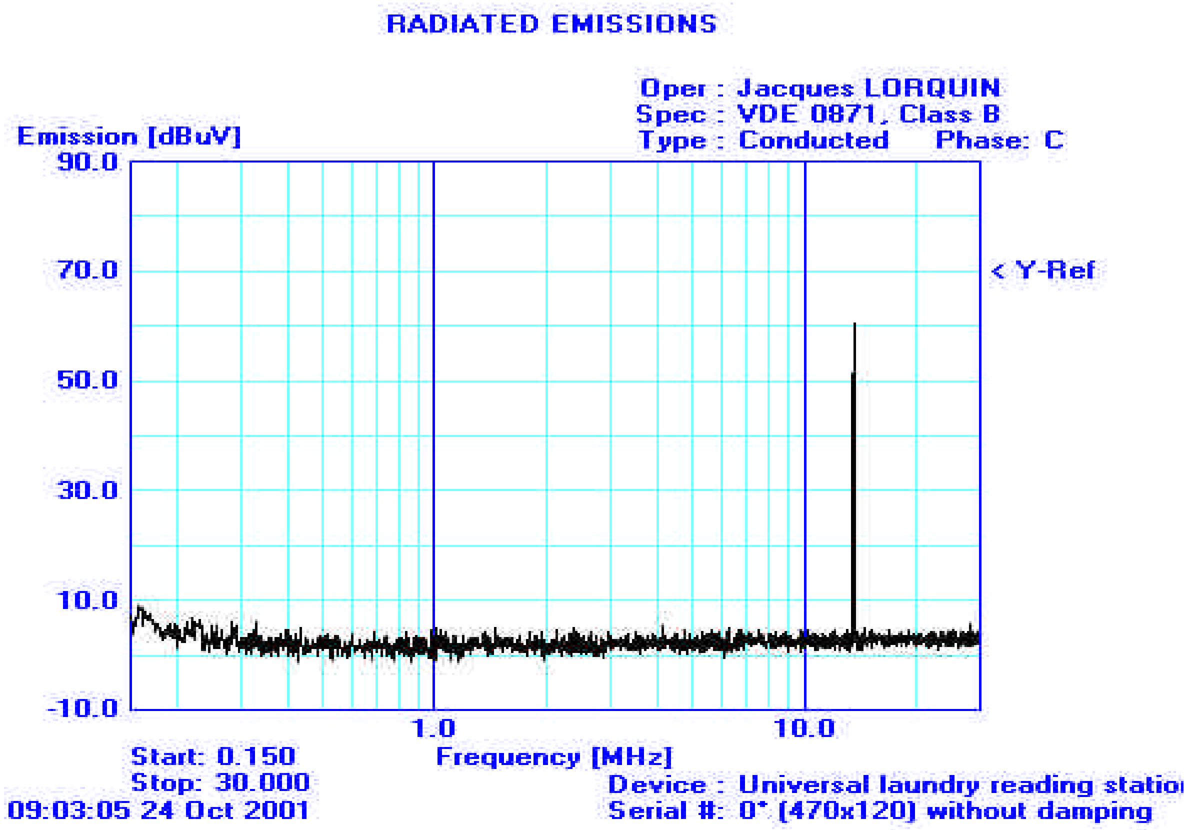
Graph example

Frequency (MHz)	QPeak Lmt (dBµV/m)	QPeak (dBµV/m)	QPeak-Lmt (dB)	Angle (deg)	Pol	Tot Corr (dB)
13.56*[1]	80	64	-16	92	hortogonal	36.4
27.12	39.5	Not traceable signal				

*[1]: Fundamental – 15.225 limits. Measure have been done at 10m distance and corrected following requirements of 15.209.e)

1.1.4 Radiated emission data for 470x120 antennas without damping

Final result below 30 MHz



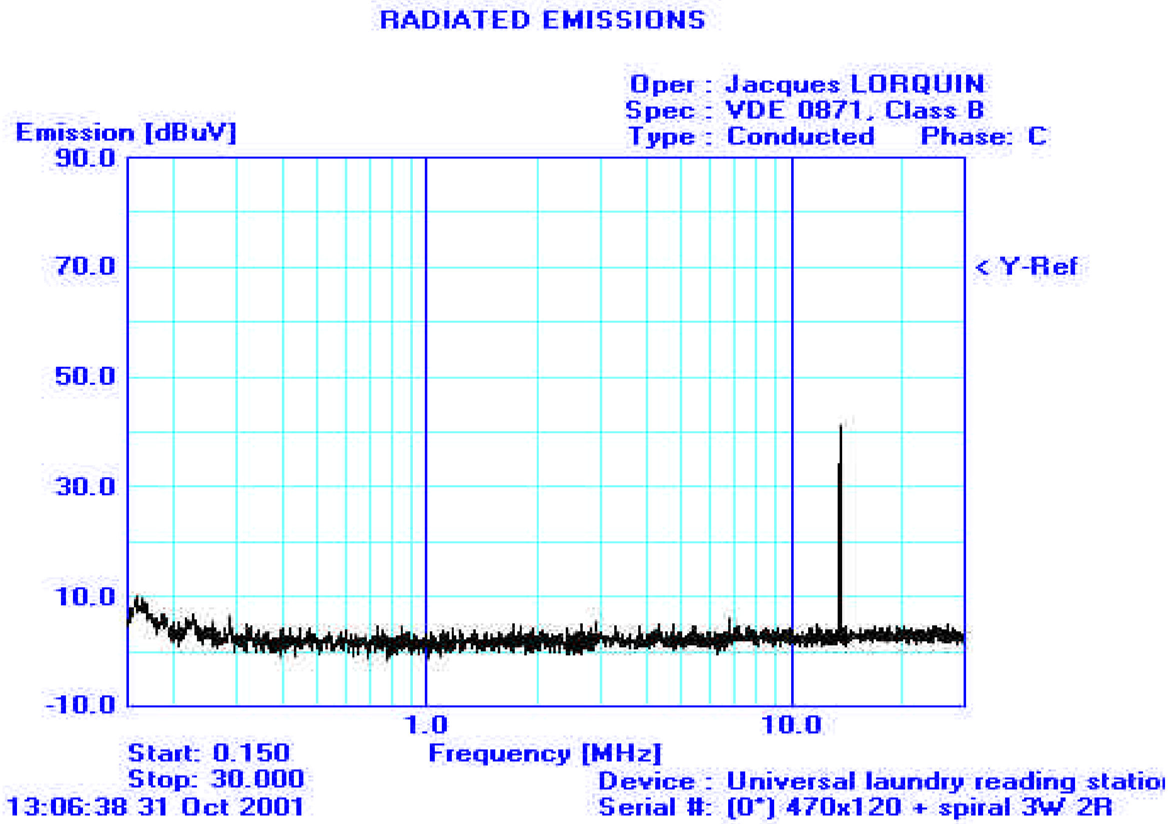
Graph example

Frequency (MHz)	QPeak Lmt (dBµV/m)	QPeak (dBµV/m)	QPeak-Lmt (dB)	Angle (deg)	Pol	Tot Corr (dB)
13.56*[1]	80	74.9	-5.1	87	hortogonal	36.4
27.12	39.5	Not traceable signal				

*[1]: Fundamental – 15.225 limits. Measure have been done at 10m distance and corrected following requirements of 15.209.e)

1.1.5 Radiated emission data for 470x120 antennas with spiral antenna

Final result below 30 MHz



Graph example - 30-1000MHz

Frequency (MHz)	QPeak Lmt (dBµV/m)	QPeak (dBµV/m)	QPeak-Lmt (dB)	Angle (deg)	Pol	Tot Corr (dB)
13.56*[1]	80	77.4	-2.6	10	hortogonal	36.4
27.12	39.5	Not traceable signal				

*[1]: Fundamental – 15.225 limits. Measure have been done at 10m distance and corrected following requirements of 15.209.e)

1.1.6 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow :

FS = RA + AF + CF – AG

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5dBμV is obtained. The antenna factor of 7.4 and a cable factor of 1.1 is added. The amplifier gain of 29dB is subtracted, giving a field strength of 32dBμV/m.

FS = 52.5 + 7.4 + 1.1 – 29 = 32 dBμV/m

The 32 dBμV/m value can be mathematically converted to its corresponding level in μV/m.

Level in μV/m = Common Antilogarithm [(32dBμV/m)/20] = 39.8 μV/m.