

Maximum Permissible Exposure Report

1. Product Information

EUT : Wireless data logger
 Model Number : FlashLink RTL
 Model Difference Declaration : N/A
 Test Model : FlashLink RTL
 Power Supply : DC 3.70V by Battery
 Hardware version : A80MR41C
 Software version : A90_DeltaTrak_L02

GSM

BAND : GSM 850
 PCS 1900
 GSM 900
 DCS 1800

GSM FCC Operation Frequency : US-Bands:
 GSM 850(UL: 824 – 848 MHz/DL: 869 – 894 MHz)
 GSM 1900(UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz)
 NON US-bands:
 GSM 900(UL: 880 – 915 MHz/DL: 925 – 960 MHz)
 GSM 1800(UL: 1710 – 1785 MHz/DL: 1805 – 1880 MHz)

Channel Separation : 0.2MHz

Modulation Technology : GMSK, 8PSK

Antenna Type And Gain : Internal Antenna
 GSM900: -0.05dBi
 DCS1800: -0.14dBi
 GSM850: -0.53dBi
 PCS1900: -0.8dBi

Note: Antenna position refer to EUT Photos.

2. Refer evaluation method

[ANSI C95.1–1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

3. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100)*	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

4. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

5. Antenna Information

This Product can only use antennas certificated as follows provided by manufacturer;

Note: The Antenna gain shows in section 1 of this file

6. Max Conducted Power

	Max. Peak Conducted Power (dBm)	Max. Average Burst Power (dBm)
GSM 850	32.89	31.70
PCS 1900	29.12	27.70

7. Manufacturing Tolerance

GSM850

Maximum Output Power(Average)			
Frequency (MHz)	824.2	836.6	848.8
Target (dBm)	31.0	31.0	31.0
Tolerance ±(dB)	1.0	1.0	1.0

PCS1900

Maximum Output Power(Average)			
Frequency (MHz)	1850.2	1880	1909.8
Target (dBm)	27.5	27.5	27.5
Tolerance ±(dB)	1.0	1.0	1.0

8. Measurement Results

8.1 Standalone MPE

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r = 20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

GSM850:

Frequency(MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
824.2	32.00	1584.8932	-0.53	0.8851	100%	0.2792	0.5495
836.6	32.00	1584.8932	-0.53	0.8851	100%	0.2792	0.5577
848.8	32.00	1584.8932	-0.53	0.8851	200%	0.2792	0.5659

PCS1900:

Frequency(MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
1850.2	28.50	707.9458	-0.80	0.8318	100%	0.1172	1.0000
1880	28.50	707.9458	-0.80	0.8318	100%	0.1172	1.0000
1909.8	28.50	707.9458	-0.80	0.8318	200%	0.1172	1.0000

Remark:

1. Output power including tune-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer;

8.2 Simultaneous Transmission MPE

N/A

9. Conclusion

Compliance

-----THE END OF REPORT-----