

Maximum Permissible Exposure Report

1. Product Information

EUT : Wireless data logger
 Model Number : FLASHLINK RTL 22366
 Model Declaration : The probe is an optional function shows in EUT photos.
 Test Model : FLASHLINK RTL 22366
 Power Supply : DC 3.70V by Battery
 Hardware version : B95MR41B
 Software version : B9B_DeltaTrak_L03

GSM

Support Bands : ☒ GSM 850
☒ PCS 1900
☒ GSM 900
☒ PCS 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: +0.8dBi
 DCS1800: -0.24dBi
 GSM850: +0.34dBi
 PCS1900: -0.31dBi

UTRA

Support Bands : ☒ WCDMA BAND I
☒ WCDMA BAND II
☒ WCDMA BAND IV
☒ WCDMA BAND V
☒ WCDMA BAND VIII

UTRA FCC Operation Frequency : US-Bands:
 WCDMA BAND V (UL: 824 – 848 MHz/DL: 869 – 894 MHz)
 WCDMA BAND II (UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz)
 WCDMA BAND IV(UL: 1710 –1755 MHz/DL: 2110 – 2155 MHz)
 NON US-bands:
 WCDMA BAND I (UL: 1920 – 1980 MHz/DL: 2110 – 2170 MHz)
 WCDMA BAND VIII(UL: 880 – 915 MHz/DL: 925 – 960 MHz)

Channel Separation : 0.2 MHz

Modulation Technology : OFDM (16QAM, QPSK)

Antenna Type And Gain : Internal Antenna
 WCDMA BAND I: +0.21dBi
 WCDMA BAND II: -0.27dBi
 WCDMA BAND IV: -0.53dBi
 WCDMA BAND V: +0.32dBi
 WCDMA BAND VIII: +0.86dBi

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	32.98	31.39
PCS 1900	29.04	27.81
UMTS BAND II	24.59	22.53
UMTS BAND IV	24.18	22.64
UMTS BAND V	25.43	23.48

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 $\pm$ (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 $\pm$ (dB)	1.0	1.0	1.0

UMTS BAND II

Maximum Output Power(Average)			
Frequency (MHz)	1852.4	1880	1907.6
Target (dBm)	22.0	22.0	22.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

UMTS BAND IV

Maximum Output Power(Average)			
Frequency (MHz)	1712.4	1732.4	1752.6
Target (dBm)	22.0	22.0	22.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

UMTS BAND V

Maximum Output Power(Average)			
Frequency (MHz)	826.4	836.4	846.6
Target (dBm)	23.0	23.0	23.0
Tolerance $\pm$ (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	0.34	1.0814	100%	0.3412	0.5495
836.6	32.00	1584.8932	0.34	1.0814	100%	0.3412	0.5577
848.8	32.00	1584.8932	0.34	1.0814	200%	0.3412	0.5659

GSM1900:

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	-0.31	0.9311	100%	0.1312	1.0000
1880	28.50	707.9458	-0.31	0.9311	100%	0.1312	1.0000
1909.8	28.50	707.9458	-0.31	0.9311	200%	0.1312	1.0000

UMTS BAND II:

Frequency(MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
1852.4	23.00	199.5262	-0.27	0.9397	100%	0.0373	1.0000
1880	23.00	199.5262	-0.27	0.9397	100%	0.0373	1.0000
1880	23.00	199.5262	-0.27	0.9397	200%	0.0373	1.0000

UMTS BAND IV:

Frequency(MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
1712.4	23.00	199.5262	-0.53	0.8851	100%	0.0352	1.0000
1732.4	23.00	199.5262	-0.53	0.8851	100%	0.0352	1.0000
1752.6	23.00	199.5262	-0.53	0.8851	200%	0.0352	1.0000

UMTS BAND V:

Frequency(MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW					
826.4	24.00	251.1886	0.32	1.0765	100%	0.0538	0.5509
836.4	24.00	251.1886	0.32	1.0765	100%	0.0538	0.5576
846.6	24.00	251.1886	0.32	1.0765	200%	0.0538	0.5644

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-----