

1 GENERAL INFORMATION

1.1 Product description

The GemEasyLink 680S is a contact less card reader connected to a Personal Computer. It is a serial interface reader for GemEasy 8000 cards, and other Mifare family product.

The GemEasyLink 680S reader uses the coupler's RF output to radiate the magnetic field and power up the GemEasy 8000 cards. The signal is modulated by the coupler to communicate commands to the GemEasy8000. The antenna also receives modulation from the GemEasy8000 acting as a field disturbing device. This signal is then delivered to the coupler. The GemEasyLink 680S reader can communicate to the Personal Computer via the RS232 serial port. The antennas (PCB loop antennas) are tuned in the factory at 13.56 MHz with the appropriate impedance value (50 +- 10%), dephasing (0°+- 10°) and Q factor. The PCB layout and component quality level ensure the necessary stability over the entire temperature range.

The GemEasyLink 680S reader is powered by an external 5Vdc power supply.

The GemEasyLink 680S is a product developed by the Gemplus company; Its previous name was GemAirLink Micro-P or Micro 680, that's why in this file could appear GemAirLink Micro-P or Micro 680 instead of GemEasyLink 680S

For more information, see product's data sheet at section 1.6.

1.2 Related Submittal(s) / Grant(s)

All host equipment used in the test configuration are FCC granted, when relevant.

1.3 Tested System Details

The FCC IDs for all equipment, plus description of all cables used in the tested system are :

Trade Mark – Model Number (Serial number)	FCC ID	Description	Cable description
GEMPLUS GemEasyLink 680S (ex-GemAirLink Micro-P)* (sn: M9908010420)	MES680SGEL	Contactless smart card reader	Shielded cable attached to product
Proxibus CMP201	none	Contactless Smart card	none
HEWLETT PACKARD Vectra 515 series D4136A (sn: FR62365527)	B94VECTRA500T	Personal computer	All data cables are shielded Power cable unshielded
HEWLETT PACKARD D2846A (sn JP93143078)	Doc. Of Conf.	21" color monitor	Shielded video cable
HEWLETT PACKARD C4734-60101 (sn: M97060565)	GYUR38SK	Keyboard	Shielded cable
HEWLETT PACKARD C3751B (sn: LZA61209812)	DZL210582	Mouse	Shielded cable
HEWLETT PACKARD 7475 A (sn: 2807L77281)	BSD4TE7475A	Serial plotter	HP 24542G shielded serial cable
HEWLETT PACKARD C2106A (sn: 3041S18664)	Doc. Of Conf.	Parallel printer	HP 24542D shielded parallel cable

*Equipment Under Test

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-1992, CISPR22-1993/A1:1995/A2:1996 and EN55022:1994/A1:1995/A2:1997.

Radiated testing was performed at an antenna to EUT distance of 10 meters. During testing, all equipment's and cables were moved relative to each other in order to identify the worst case set-up.

1.5 Test facility

Tests have been performed on March 13th, 2000.

The test facility used to collect the radiated and conducted data is the SMEE Actions Mesures facility, located ZI des Blanchisseries, 38500 VOIRON, France. This test facility has been fully described in a report and accepted by FCC as compliant with the radiated and AC line conducted test site criteria in ANSI C63.4-1992 in a letter dated August 04, 1999 (registration number 94821).

This test facility has also been accredited by COFRAC (French accreditation authority for European union test lab accreditation organization), accreditation number 1-0844 as compliant with test site criteria and competence in EN55022/CISPR22 norms for 89/336/EEC European EMC Directive application. All pertinent data for this test facility remains unchanged.

1.6 Data sheet of the product

GemEasyLink 680S (ex Micro680)- Product Sheet

Very compact and convenient short-range coupler

The processing features of this coupler are equivalent to those of the GCI680. An integrated antenna fitted with ferrite allows normal operation.

The GemEasyLink 680S is a serial interface reader for [GemEasy8000](#) and other Mifare® family products, including GemFlash300 for the future release of the operating system.

Typical operating distance with GemEasy8000 type contactless cards is 25 mm.

The GemEasyLink 680S is available in other versions (derived products):

- **GemEasyLink 680SP**: GemEasyLink 680S in a plastic housing for desktop applications.
- **GemEasyLink 680SL**: this reader is a GemEasyLink 680S with a RS232 interface only.

High-Level Operating System

The GemEasylink 680S, like the GCI680, is microprocessor controlled and runs ROS680 firmware.

This offers easy interface with applications through ISO 7816-4 APDU format commands.

ROS680 has combined commands allowing an advanced sequence of elementary actions to be executed (e.g., authentication and reading or writing of several blocks on a single sector).

GemEasyLink 680S benefits from ROS680 upgrades with support for advanced commands (backup management and withdrawal management for electronic purse applications). This version of operating system supports the following cards:

- GemEasy8000
- [GemEasy300](#)

The capabilities of the ROS680 significantly reduce transaction processing time and improve application efficiency.

Modularity for Greater Potential

The Micro680 has a modular design, allowing various options to be implemented. It can even be used as a short range active antenna driven by a GCI680 or a GemEasyLink 680S.

Technical specifications:

Dimensions	50 x 70 x 22 mm
Power supply	7 to 12 VDC - max 120 mA (in working state)
Operating range	GemEasy8000: 0 to 25 mm MA8000: 0 to 15 mm
Antenna	Built-in ferrite antenna allowing metal mounting operation
Connectors	<ul style="list-style-type: none"> • Power supply • RS485/RS232 • Battery • Active antenna • Wiegand • TTL • Backup capacitor • Cable shield
EMC compliance	Fully compliant with CE regulations
Host interface	RS232, RS485, TTL, Wiegand (except version 1.03)
Baud rate	1.2 to 76.8 kbaud
User interface	Monitoring LED