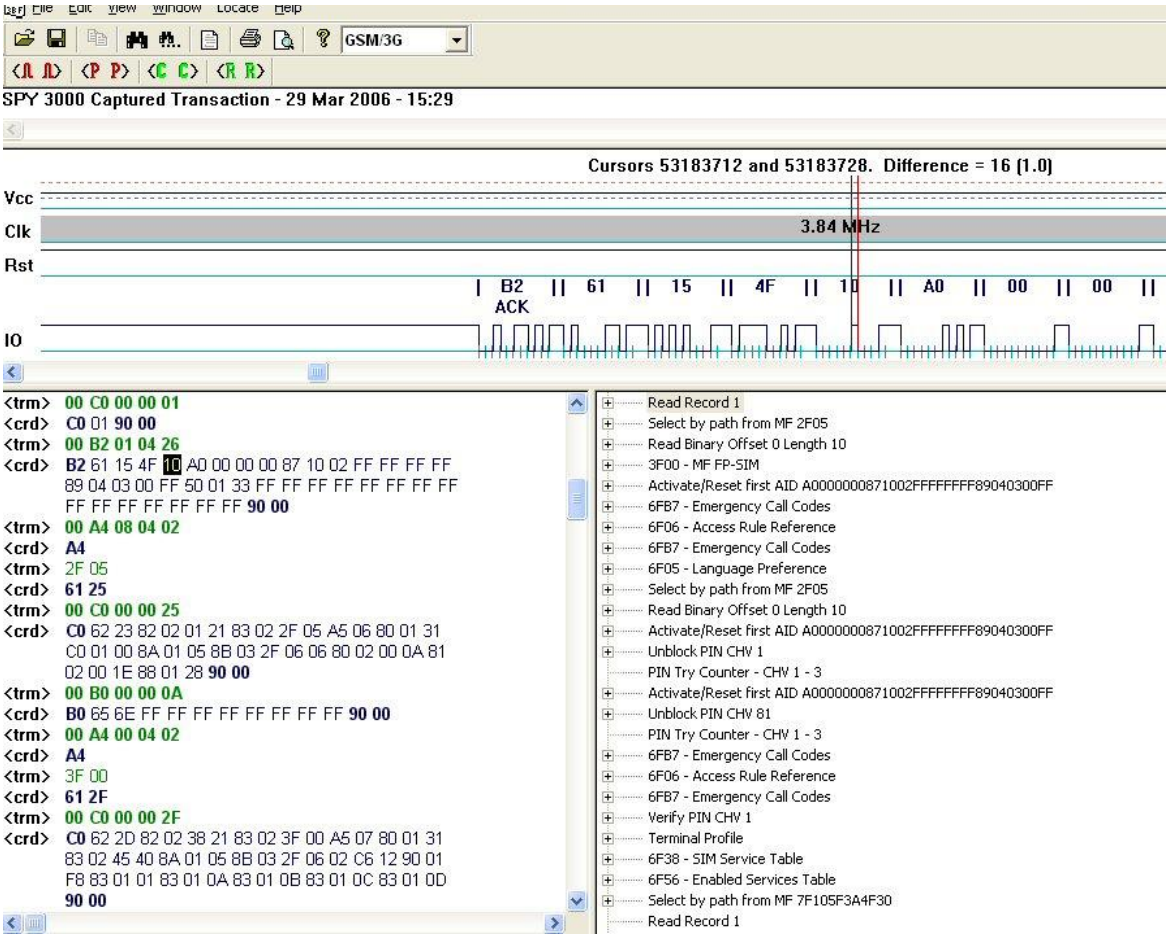
BARNES INTERNATIONAL

SPY 3000

GSM/3G and EMV Communication Monitor

Check SIM toolkit payment application activity and interoperability



FAST, ACCURATE, RELIABLE — **Quickly and effectively investigate interoperability problems between a chip card and any chip card accepting device (Mobile phone, POS terminal, ATM)**

PORTABLE — **Compact, lightweight unit, DC power. Use SPY anywhere – laboratory, office or on site**

PROTOCOL & LOGIC ANALYSIS — **Monitor and analyse communications protocol, and measure signal timings to accurately assess card and terminal against ISO 7816, EMV, GSM and 3GPP**

INTERPRETER — **Interpret application level data: EMV, GSM and 3GPP as standard**

DEVELOP SCRIPTS — **Easily develop custom application interpretation scripts**

POWERFUL GUI — **Dynamically linked colour coded displays for all levels of user expertise and requirements**

MasterCard. Vendor Program 2009 Participant

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SPY 3000

SPY 3000 is PC/Laptop controlled via full speed USB; it comprises a lightweight electronics unit plus a tiny card acceptor module which allows convenient placement near the terminal, importantly minimising cable length between the card and the terminal. An interchangeable flexible probe connects card acceptor and terminal. ID-1 and (U)SIM probes are available for connection to any terminal or GSM/3G mobile phone.

The SPY 3000 software comprises a hardware interface which provides low level control and monitoring of the SPY 3000 hardware, and a data display application which provides the data presentation and analysis features. This two application approach enables just generated and stored sessions to be displayed simultaneously for comparison purpose, and permits saved sessions to be examined in the absence of the hardware.

SPY 3000 Diagnostic capability
The SPY 3000 user display comprises three concurrent main views of the card/terminal interaction process. The views dynamically spy on the card/terminal interaction in real time as the test proceeds. These views are linked interactively so that if the user highlights a specific command or sequence in one view then the other views automatically synchronise at the same data position.

> **Logic Analyser (Graphic) view:** Graphical representation of the logic level of each of the signal lines, Vcc, reset, clock and I/O. Horizontal and vertical (zoom control) scroll bars, colour coding on I/O line to indicate the transmitter (card or terminal), two adjustable cursors measure time difference (accurate to one clock cycle) and link to the other views.
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> **Byte Level Communication Log view:** Textual Communications Log using colour coding to highlight data source (card or terminal), protocol bytes, errors in data, parity errors, character repetition requests.
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> **Interpreted Application Tree display:** Application level data in tree-structured format controlled by a TCL (Tool Control Language) script. **EMV** and **GSM/3GPP** scripts are provided as standard. Interpretation scripts for other applications may be easily developed in TCL by the user or may be requested from Barnes.

Application Scripts
The interpreted view is controlled by application specific scripts written in Tcl which may be selected manually or automatically. Application scripts are provided for both **EMV** and **GSM** with SPY 3000 where the data exchange is reported and checked against application specifications and rules. Interpretation scripts for other applications may be easily developed using SPY 3000 or may be requested from Barnes.

A comprehensive range of utilities are provided including data save, retrieval, search, reporting and printing.

SPY 3000 Technical Summary

- Supports industry specifications (including ISO 7816, EMV 2000, GSM 11.11, 11.12, 11.14, 11.18 & 3GPP)
- Protocol support: T=0 and T=1
- Clock frequencies in the range 500KHz to 10MHz
- Event timings are accurate to 1 clock cycle, timings are reported in terminal clock cycles and etu's.
- Full translation of ATR, PTS, APDU commands and responses, status and procedure bytes etc.
- Auto PTS speed setup
- Speed support >300KBaud; 16 clock cycles/etu
- Clock speed and clock stop analysis
- Signals Monitored: Vcc (nominally 5v, 3v, 1.8v or Off), Reset State (High or Low), Clock State (High, Low or Running), I/O State (High or Low), I/O current direction.
- Logic transitions on Reset and I/O are time stamped
- OS: Win 2000 , XP & Vista.

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