

[PRODUCT SHEET]

Product: TEMS™ Investigation –
Scanning Receiver Unit



SRU – SCANNING RECEIVER UNIT FOR TEMS™ INVESTIGATION



SRUs (Scanning Receiver Units) are light-weight and versatile devices dedicated to GSM and WCDMA scanning.

The SRU concept provides a flexible and highly cost-efficient scanning solution, allowing operators and service providers to enhance network performance during deployment as well as during optimization and troubleshooting.

The SRU is built on the same hardware as commercial Sony Ericsson mobile phones. This means that the SRU delivers precisely the same signal strength readings as the commercial phones, using identical circuitry. More generally, being equipped with identical hardware, the SRU has no need to simulate any part of the phone's scanning procedure in software.

Furthermore, since it is devoted to the task of scanning, the SRU vastly outperforms commercial phones in terms of scanning speed and update rate. (Phones do not scan any more than what is required to maintain good radio performance.) The SRU is fully on a par performance-wise with scanners based on dedicated hardware.

In GSM networks, the SRU undertakes RSSI scanning of selected channels or entire GSM bands. BSIC decoding can optionally be done whenever possible.

For WCDMA, the SRU performs CPICH scanning on up to 12 carriers at a time. A snapshot of System Information Message can be taken once for each cell camped on. Furthermore, a special "BCH scanning" mode is available for continuous monitoring of System Information. The latter is useful for example when conducting a close-up investigation of parameter settings.

The SRU contains an Ericsson F3607gw Mobile Broadband Module supporting frequency bands as follows:

- GSM 850/900/1800/1900 MHz
- WCDMA 900/1900/2100 MHz (Europe) or 850/1900/2100 MHz (US)

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Scanning capabilities	Scanning Receiver Unit (SRU) F3607gw
Technology	GSM and WCDMA
WCDMA bands	850/1900/2100 (US) or 900/1900/2100 (EU) MHz
GSM bands	850/900/1800/1900 MHz
WCDMA scanning	Top-N CPICH scanning, BCH scanning
GSM scanning	GSM carrier (RSSI) scan, BSIC decoding

WCDMA SCANNING: TECHNICAL DATA AND PERFORMANCE

	Top-N CPICH Scanning	BCH Scanning
Number of cells	Up to 40 cells per UARFCN	Up to 40 cells per UARFCN
Number of UARFCNs	Up to 12 UARFCNs	Up to 12 UARFCNs
Measurements taken	RSCP (Total and Path), Ec/No, RSSI	RSCP (Total and Path), Ec/No, RSSI, UL interference, intra-frequency cells, inter-frequency cells, inter-RAT (i.e. neighbor lists of scanned cell)
System Information messages decoded	MIB, SIB1 ... SIB7, SIB11, SIB11bis, SIB12, SIB18, SB1, SB2	MIB, SIB1 ... SIB7, SIB11, SIB11bis, SIB12, SIB18, SB1, SB2
Acquisition time	20 ms (typical; i.e. about 50 cells are measured each second)	Single System Information Message: 50–200 ms (random wait until a message arrives). One cell with 6 System Information Messages being broadcast: Approx. 300 ms
Ec/No cell limit	-30 ... 0 dB (configurable)	-20 dB (fixed)
Measurement resolution	0.01 dB	
Measurement accuracy	±1.0 dB (typical)	
Measurement range	-116 ... -15 dBm	
False detection rate	Ec/No cell limit (dB)	False detection rate (%)
	< -28	> 17
	-27	2.5
	-26	0.026
	-25	0.011
	> -24	< 0.0065
CPICH detection thresholds	Relative: Ec/No = -30 dB, Absolute: Ec = -116 dB	
Max. number of Rake fingers	12	



GSM SCANNING: TECHNICAL DATA AND PERFORMANCE

	GSM Carrier (RSSI) Scan and/or BSIC decoding	
Scanning capacity	Individual carriers: Up to 200. Carrier ranges: Up to 4, each of which may extend to an entire GSM band. It is thus possible to scan all carriers on four GSM bands simultaneously.	
Measurement range	-117 dBm ... -38 dBm	
Measurement resolution	1.0 dB	
Measurement accuracy	±2.0 dB (typical)	
Resolution bandwidth	200 kHz	
Scanning speed (ARFCNs/sec)	Whole bands, no BSIC decoding	1600
	Individually selected carriers, no BSIC decoding	Min. 50, max. 300
	With BSIC decoding	40

PHYSICAL SPECIFICATIONS

Input power	USB 5V (500 mA) + external 9-18V (1,5A@12V)
Size	126 x 80 x 30 mm
Weight	272 gr
Temperature	Operational -25°C to +60°C, Storage -25°C to +70°C (Maximum temperature may be affected by technology used)
Connectors	2x USB 2.0, 1x Audio, 2x SMA RF Antenna (Primary/Diverse), 1x Power
Certifications	USB 2.0, RoHS (Directive 2002/95/EC), CE

Scanning sensitivity to speed: The scanning performance mentioned in this information sheet is maintained without degradation at speeds up to at least 250 km/h.