

Skymeter Service Architecture

Skymeter's three-tier service architecture ensures privacy and flexibility, minimizes costs, and enables a full range of policies. Skymeter provides financial-grade, privacy-protected metering data to service operators for road tolling, parking payment and pay-as-you drive insurance. Service operators may be telcos, integrators, governments or private operators.

1

On-Board Meter: Financial-grade GPS



- autonomous: no vehicle data connection required
- no map-matching means no data update costs
- peel-and-stick self-installation reduces startup costs
- powered from any vehicle DC source
- GPRS, Bluetooth and other communications options
- advanced position processing algorithms
- advanced data compression and storage
- stores 12 months or more of metering data
- compatible/interoperable with existing DSRC systems available
- full spectrum of tamper resistance

2

Device Gateway: Smart Metering for Vehicles



- privacy and anonymity shield (variable privacy level options)
- full roaming across any group of states, provinces or countries
- full EETS (European Electronic Toll Service) compliance available
- built-in integrity checks as part of tamper-resist and enforcement
- management of whitelists and blacklists for enforcement
- multiple applications - tolling, parking, emissions, insurance
- add new applications without changing the meter
- charge by area, cordon, distance, segment or virtual gantry
- customized tariff-schemes can be changed without interruption

3

Billing Feed: Reliable Metering Data for Operators

Skymeter uses Financial-grade GPS (FGPS). According to the GNSS Metering Association for Road user charging (GMAR), metering systems should be evaluated on:

Charging Accuracy (the right cost per trip): Skymeter delivers 99.5% accuracy for all driving, including in cities and 'urban canyons' (where other systems degrade rapidly) and on- or off-road driving (where map matching does not work)

Charging Integrity (low probability and low amount of overcharging; evidence accessible if bill is challenged): Skymeter exhibited a maximum error of less than 1.5% over 150 urban drives

over 3000 km in extreme urban canyon (other GPS showed 15% maximum error on the same test). Skymeter can generate a trip record of high evidentiary weight for each individual trip (no map matching or inertial navigation system can do this)

Charging Availability (an extremely low amount of under-charging; unbroken evidentiary chain): Skymeter currently exceeds 99% availability, with the expectation of further improvement

INVOICE		Name: JOHN SMITH	Account: 2905732	Billing Period: MAR 23 - MAR 29, 2008
		Vehicle Class: A - Personal Passenger Vehicle	Payment Due: APRIL 15, 2008	
DRIVING CHARGES				
Date	Details	Units	Price Per Unit	Total
Sun Mar 23	13:20 - 13:33 Suburban Charge - Sunday	23	\$0.010	\$0.23
	17:56 - 18:13 Suburban Charge - Sunday	25	\$0.010	\$0.25
Mon Mar 24	07:13 - 07:59 Suburban Charge - Weekday	85	\$0.035	\$2.98
	Urban Charge - Weekday	37	\$0.050	\$1.85
	Congestion Charge	37	\$0.065	\$2.41
Tue Mar 25	Congestion Rebate	1	-\$0.50	-\$0.50
	19:22 - 19:45 Suburban Surcharge - Weekday	44	\$0.035	\$1.54
	22:12 - 22:27 Suburban Surcharge - Weekday	43	\$0.035	\$1.51
			Subtotal	\$16.86
PARKING CHARGES				
Date	Details	Time	Price Per Minute	Total
Sun Mar 23	Park Canada Inc.	Whole Day Charge		\$15.00
Tue Mar 25	330 - 400 White Road, Oakville Ont			
	19:45 - 19:52 (7 minutes free)	7	N/C	\$0.00
	19:53 - 20:53 (Bike hour)	60	\$0.025	\$1.50
	20:54 - (evening zone)	69	\$0.10	\$6.90
			Subtotal	\$23.40
			Total Due	\$30.26



Skymeter v5.5

Data Sheet



Electrical

Input Power:	12.0 – 24.0 VDC
Operating Current:	120 ma @ 12VDC
Standby Current :	5.0 ma

Physical and Performance

Unit Dimensions:	6.5" x 1.9" x 1.5" (16.5x 49 x 3.8cm)
Weight:	11.28 oz (320g)
Battery:	Rechargeable high temperature lithium-polymer
Battery Life:	Operating 5 hours, Standby 1000 hours
Waterproof:	No
High Sensitivity GPS Receiver:	Best-in-class acquisition and tracking
Time To First Fix (TTFF):	< 1 sec typical
Bluetooth 2.0 (optional):	Class 1, max 16.9dBm (49mW)
Telco Quad Band GSM/GPRS Module:	Nominal 2W peak RF power (+33dBm)
RoHS compliant:	Yes
CE Certified:	CISPR 22:2008-09/EN55022:2006 +A1:2007 Class A
Mounting slot:	Optional window or dash mounts
Indicators:	Visible LED and audio

Security Features

- Sealed protective case
- Device removal detects
- Device transfer detects
- Multilevel encryption and internal tamper detection

Environmental

Maximum operating temperature:	+70C (158F)
Minimum operating temperature:	-40C (-40F)
Damp heat:	cyclic +25°C to +55°C; >90% Rh

Software Compatibility

SOA

MARKET APPLICATIONS:

Able to bill by any or all of the following:

- area
- cordon
- distance
- segment
- virtual gantry

Able to bill:

- on any class of road (other systems only do major highway segments)
- in all urban or rural areas (other systems do rural only)
- on or off roads (other systems are limited to mapped roads only)
- in any combination (other systems do one approach only)
- with a single *price-map* facility

Able to charge pay-as-you-drive insurance premiums and for parking (no other road-charging system also does GPS parking)



Data subject to change.
Contact Skymeter Corporation for further information or changes in information +1 416 673 8406
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