# XPERIA™ ray

ST18i, ST18a

Sony Ericsson

make.believe ™

# Purpose of this document

Sony Ericsson product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

# Document history

| Version | | |
|---|---|---|
| June 2011 | First released version | Version 1 |

# Sony Ericsson Developer World

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# Table of contents

# Product overview

## Xperia™ ray

Sleek and irresistibly elegant with a clear vibrant display, the Xperia™ ray combines compactness with high functionality and style.  Here's a summary of the main features:

- Elegant smartphone with aluminium frame, mineral glass – and only 9.4mm thin
- Great stills and videos even in low light with Exmor R™ for mobile
- Reality Display with Mobile BRAVIA® Engine
- Fast, powerful smartphone with all the apps you need

### 9.4mm thin
Just 9.4mm thin and 100g light, the Xperia™ ray can fit neatly into the palm of your hand, or slide comfortably into a small shirt or jeans pocket. Its flat aluminum frame adds further grace and style. But it's got more than just good looks. The Xperia™ ray combines the best of Android with the latest goodies from Sony Ericsson.

### Vibrant visuals
The Xperia™ ray delivers HD video and 8.1 megapixel photo capturing. Capture exceptionally clear photos and videos even by candlelight with Exmor R for mobile, a back-illuminated CMOS sensor that uses light more efficiently than conventional front-illuminated pixel technologies. Mobile BRAVIA ENGINE further enhances the visual experience, combining magically with the scratch-resistant mineral glass and 3.3 inch Reality Display. The black screen finish cuts down on light lost through reflection, resulting in a clearer image. And if that's not enough, you get to browse the web in FWVGA resolution.

### Power to go
The Xperia™ ray's durable 1500mAh battery combines with the pre-installed power save mode application to give you up to five times more staying power. So you can chat, watch videos and enjoy your music for as long as you want.

### Grow with Android Market
With the Android Market application installed as standard on your Xperia™ ray, you can easily download everything from games to everyday tools and entertainment apps. With more than 200,000 apps available, there are thousands of ways to personalise your life.

# Sony Ericsson signature features

The Xperia™ ray comes with a range of  Sony Ericsson features as standard. Below is a summary of the key signature features.

## Sony Ericsson Timescape™
**The place to meet your friends**
The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse  by category your Facebook™, Twitter™, email and text communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

## Sony Ericsson infinite button
**Everything you want – from everywhere**
Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

## Sony Ericsson Sync™
**Your mobile life on the web**
Synchronise your phone data using Sony Ericsson Sync so that you always have a backup. While you're at it, match your phone contacts with your Facebook™ contacts. All your synchronised phone data is right at your fingertips and in your account on www.sonyericsson.com.

## Sony Ericsson Local connectivity
**More control over your media**
Using Sony Ericsson Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption or select MSC mode if you want to have more control over the data storage.

## Sony Ericsson Home screen application
**The place you call Home**
Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where's best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you've got plenty of space to put things where you want. Just remember to flick left or right to find them.

***Note:*** *Some of the services mentioned above may not be available in all markets.*

# Facts – dimensions, weight, performance and networks

| | |
|---|---|
| **Operating system** | Google™ Android™ 2.3 (Gingerbread) |
| **Processor** | 1 GHz Qualcomm Snapdragon™ MSM8255 |
| **Size** | 111x 53x9.4 mm |
| **Weight** | 100 grams |
| **Available colours** | Black<br>Gold<br>Pink<br>White |
| **Main screen** | |
| Colours | 16,777,216 colour TFT |
| Resolution | 854x480 pixels |
| Size (diagonal) | 3.3 inches |
| Scratch resistant | Shatter proof sheet on scratch-resistant glass |
| **Input mechanisms** | |
| Text input | On-screen QWERTY keyboard, 12 key input |
| Touch screen | Capacitive (multi-touch) |
| Touch gesture | Yes - multi-touch |
| **Memory** | |
| Internal phone storage | 1 GB (up to 300 MB of user accessible memory) |
| RAM | 512 MB |
| Expansion slot | microSD™, up to 32 GB |
| **Camera** | |
| Camera resolution | 8.1 megapixel |
| Front-facing camera | Yes |
| Digital zoom | 16x |
| Video recording | Yes - HD 720p |
| **Sensors** | |
| Accelerometer | Yes |
| Proximity sensor | Yes |
| Ambient light sensor | Yes |
| Magnetometer | Yes |

| Networks | |
|---|---|
| ST18i | UMTS HSPA 900 (Band VIII), 2100 (Band I)<br>GSM GPRS/EDGE 850, 900, 1800, 1900 |
| ST18a | UMTS HSPA 800(Band VI), 850 (Band V), 1900 (Band II), 2100 (Band I)<br>GSM GPRS/EDGE 850, 900, 1800, 1900 |
| **Data transfer speeds** | |
| GSM GPRS | Up to 86 kbps |
| GSM EDGE | Up to 237 kbps |
| UMTS HSPA cat 6 (upload) | Up to 5.8 Mbps |
| UMTS HSPA cat 8 (download) | Up to 7.2 Mbps |
| | |
| **Talk time** (GSM) | Up to 6 hours 50 mins* |
| **Standby time** (GSM) | Up to 430 hours* |
| **Talk time** (UMTS) | Up to 7 hours* |
| **Standby time** (UMTS) | Up to 440 hours* |
| **Music listening time** | Up to 36 hours |
| **Video playback time** | Up to 6 hours 45 mins |
| **Battery** | 1500 mAh |

*Values are according to GSM Association Battery Life Measurement Technique.*
**Note:** *Battery performance may vary depending on network conditions and configurations, and phone usage.*

# Application overview list

**Sony Ericsson signature applications**
Sony Ericsson Home sceen application
Sony Ericsson Music Player
Sony Ericsson Timescape™

**Sony Ericsson services**
PlayNow™ service*
TrackID™ application
Sony Ericsson Sync™

**Other applications**
Facebook™ *
Microsoft® Exchange ActiveSync®
Wisepilot™ turn-by-turn navigation (free trial version)*

*This service is not available in all markets.*

# Categorised feature list

### Camera
8.1 megapixel camera
16x digital zoom
Aperture f/2.4
Auto focus
Face detection
Face recognition
Photo light
Front-facing camera (VGA)
Geo tagging
HD video recording (720p)
Image stabiliser
Scene detection
Self-timer
Send to web
Smile detection
Sony Exmor R™ CMOS sensor
Touch capture
Touch focus
Video light
Video recording
Video stabiliser

### Music
Album art
Bluetooth™ stereo (A2DP)
Music tones (MP3/AAC)
PlayNow™ service**
SensMe™
Sony Ericsson Music Player
TrackID™ music recognition
application**
xLOUD™ Experience

### Internet
Android Market*
Bookmarks
Google™ search**
Google Voice Search**
NeoReader™ barcode scanner
Pan & zoom
Web browser (WebKit)

### Communication
Call list
Conference calls
Facebook™ application
Google Talk™
Noise Shield
Polyphonic ringtones
Sony Ericsson Timescape™
Speakerphone
Twitter™ (Timescape™ integra-
tion)
Vibrating alert
Video chat ready

### Messaging
Conversations
Email
Google Mail™
Instant messaging
Picture messaging (MMS)
Predictive text input
Text messaging (SMS)

### Design
Auto rotate
Keyboard (on-screen, 12 key)
Keyboard (on-screen, QWERTY)
Picture wallpaper
Reality display with Sony Mobile
BRAVIA® Engine
Touch screen
Wallpaper animation

## Entertainment

3D games
Media browser
Motion gaming
Radio (FM radio with RDS)
Video streaming
YouTube™ *

## Organiser

Alarm clock
Calculator
Calendar
Document editors
Document readers
E-Manual
Flight mode
Google Calendar™
Google Gallery 3D™*
Infinite button
Phone book
Setup Wizard
Widget manager

## Connectivity

3.5 mm audio jack
aGPS
Bluetooth™ technology
DLNA Certified™
Google Latitude™
Google Maps™ with Street View
Media Transfer Protocol support
Micro USB support
Modem
Native USB tethering
Synchronisation via Facebook™
Synchronisation via Google™ Sync*
Synchronisation via Sony Ericsson Sync
Synchronisation with computer
Synchronisation via Exchange ActiveSync®
USB High speed 2.0 support
USB mass storage
Wi-Fi®
Wi-Fi® Hotspot functionallity
Wisepilot™ turn-by-turn navigation*

*Applications from the Android Market™ vary widely in size, from less than 100 KB for small utilities to 3-4 MB for full games, music player applications, or other major offerings. The average size, if a representative selection of useful and fun applications is selected, is about 1 MB. This means that, on average, more than 100 applications can be downloaded and used on your device without negatively impacting performance. With the ready availability of the Android Market™ application in the phone, it is also very easy to delete and later reinstall infrequently used applications.*

** This service is not available in all markets.

# Technologies in detail

**NOTE**: The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Ericsson Developer World or your Sony Ericsson contact person where applicable.

## Device-to-device communications (local)

### Bluetooth wireless technology

| | |
|---|---|
| Bluetooth™ profiles supported | Advanced Audio Distribution Profile v1.2<br>Audio/Video Remote Control Profile v1.0<br>Handsfree Profile v1.5<br>Headset Profile v1.1<br>Object Push Profile v1.1<br>Phonebook Access Profile v1.0 |
| Core version and supported core features | Advanced Audio 2.1+EDR |
| Connectable devices | Products supporting at least one of the profiles above. |

More information:

*www.sonyericsson.com/developer*

*www.bluetooth.com*

## Wi-Fi®

| | |
|---|---|
| Supported standards | IEEE 802.11b/g/n and Wi-Fi®. |
| Connectable devices | Wi-Fi® access points |
| Frequency band | 2.4 GHz |
| Data transfer rate | Up to 72 Mbit/s |
| Security | WEP 64 bit<br>WEP 128 bit<br>TKIP<br>CCMP (AES)<br>Open Authentication<br>Shared Authentication<br>EAP-TLS<br>EAP-TTLS/MSCHAPv2<br>PEAPv0/EAP-MSCHAPv2<br>PEAPv1/EAP-GTC<br>WPA Personal and WPA2 Personal<br>WPA Enterprise and WPA2 Enterprise |
| Encryption | WEP, TKIP and AES |
| Power save | WMM-UAPSD<br>QoS, WMM |

## DLNA™ (Digital Living Home Alliance)

| | |
|---|---|
| Supported Device Classes | M-DMS – Mobile Digital Media Server<br>Media Types: Images<br>Summary: The digital media server exposes the media files in your phone to a Wi-Fi® network. The media files can then be accessed from other DLNA clients. |
| Supported Bearers | Wi-Fi® |
| DRM Support | The Sony Ericsson DLNA implementation does not support DRM-protected content. |

# Messaging

## MMS (Multimedia Messaging Service)

MMS 1.0 is supported.

## Email

| | |
|---|---|
| Bearer type (IP) | GPRS, EGPRS, UMTS |
| Character sets | BIG5 Traditional Chinese<br>GB2312 Simplified Chinese<br>ISO-2022-JP Japanese<br>ISO-8859-1<br>ISO-8859-2 Eastern Europe<br>ISO-8859-5 Cyrillic<br>ISO-8859-7 Greek<br>ISO-8859-9 Turkish<br>ISO 8859-11<br>KOI8-R Cyrillic<br>Shift_JIS Japanese<br>USASCII<br>UTF-16<br>UTF-8<br>Windows® 874<br>Windows® 1251 Cyrillic<br>Windows® 1252<br>Windows® 1254 Turkish<br>Windows® 1258 Vietnamese |
| Protocols | POP3 and IMAP4 |
| Push email | Microsoft® Exchange ActiveSync® (EAS) |
| Secure email | SSL/TLS, both port methods (POPS/IMAPS) and START-TLS |
| HTML mail | Yes (read only) |

**More information:**

*www.sonyericsson.com/developer*

*www.openmobilealliance.org*

# Positioning – location based services

Supported standards:

OMA Secure User Plane Location (SUPL) v1.0

3GPP™ Control Plane location (incl. Emergency location)

Qualcomm® GPSOneXtra

# Provisioning (OMA CP)

OMA CP version 1.1

# Multimedia (audio, image and video)

| Audio Playback | **Decoder format**<br>Audio decoding MPEG-1/2/2.5, audio layer 3<br>AAC, AAC+, eAAC+<br>AMR-NB, AMR-WB<br>General MIDI (GM)<br>Linear PCM 16bit<br>OTA<br>Ogg vorbis | **Supported in file format**<br>MP3 (.mp3) , 3GPP (.3gp); MP4 (.mp4, .m4a)<br>3GPP (.3gp) MP4 (.mp4)<br>3GPP (.3gp) MP4 (.mp4)<br>SMF (.mid)<br>WAV (.wav)<br>OTA (.ota)<br>Ogg vorbis (.ogg) |
|---|---|---|
| **Audio Recording** | **Encoder format**<br>AMR-NB, AMR-WB<br><br>AMR-NB, AMR-WB, AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps | **Supported in file format**<br>3GPP (.3gp), MP4 (.mp4), AMR(.amr)<br>3GPP (.3gp), MP4 (.mp4) |
| **Image Playback** | **Decoder format**<br>1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats<br>Single and multi frame, bitmap mask support (GIF87a format and GIF89a format)<br>Joint Photographic Experts Group<br>Portable Network Graphics Bit-map mask support<br>Wireless Bitmap | **Supported in file format**<br>BMP (.bmp)<br><br>GIF (.gif)<br><br><br>JPEG (.jpg)<br><br>PNG (.png)<br><br>WBMP (.wbmp) |
| **Image Capture** | **Encoder format**<br>Joint Photographic Experts Group | **Supported in file format**<br>JPEG (.jpg) |
| **Video Playback** | **Decoder format**<br>MPEG-4 Visual Simple Profile, Advanced Simple Profile Level 6<br>H.264 High Profile  Level 3.1<br>H.263 Profile 0, Profile 3 Level 70 | **Supported in file format**<br>3GPP (.3gp); MP4 (.mp4)<br>3GPP (.3gp); MP4 (.mp4)<br>3GPP (.3gp) |
| **Video Recording** | **Encoder format**<br>- Video H.263 Profile 0, H.264 Baseline Profile<br>- Audio: AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps, AMR-NB | **Supported in file format**<br>3GPP (.3gp), MP4 (.mp4) |
| **Audio/Video Streaming** | Streaming transport | RTSP according to 3GPP™<br>HTTP streaming |
| **DRM** | DRM (Digital Rights Management) — features the rights and copy protection of downloaded content. | OMA DRM 1.0 |

## Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2.

OMA Data Formats: vCard 2.1, vCalendar 1.0.

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Google Sync™

Related information: www.sonyericsson.com/developer

## Web browser

| Browser version | Android 2.3 Browser (Based on WebKit) |
|---|---|
| Navigation/rendering | Pan & Zoom<br>Landscape/portrait rendering<br>Full page PC rendering<br>Adobe™ Flash™ 10.1 |
| Search | Internet Search |
| Browser compliancy | HTML version 4.0<br>HTML version 5.0<br>XHTML Basic version 1.0<br>XHTML 1.1<br><br>CSS 2.0<br>CSS 2.1<br>CSS 3.0<br><br>JavaScript 1.7/ECMA-script 262 3rd edition<br><br>DOM 2.0<br>DOM 3.0 |
| Supported Device API | Geo-location API |
| Protocol compliancy | HTTP/1.1<br>TLS 1.0 and SSL 3.0<br>Gzip<br>OMA Download 1.0 |

Related information:

www.sonyericsson.com/developer

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