

PRODUCT SUPPORT

Signal Analyser

Updated February 17, 2026



Identify the optimum location for your connected device prior to installation.

CSL Signal Analyser is designed to relay accurate and essential data, to ensure the best position for your installation every time. It searches all the local base stations to give you an accurate reading of the major networks available, measuring and displaying radio technology, signal quality and radio signal strength. It provides information for 4G, 3G and 2G technologies and can also perform local Wi-Fi (2.4Ghz) surveys.

By connecting the aerial of your device to the Signal Analyser, you can utilise the live monitor function to find the optimum installation location. The Signal Analyser is ideal for installations of alarm signalling systems, 4G routers, parking meters/smart meters, Telecare products and many more applications.

Latest information

<https://www.csl-group.com/support/csl-signal-analyser/>

Quick Guide

Introduction

The CSL Signal Analyser is a portable, battery operated device for monitoring Cellular and Wi-Fi signal strength.

Warnings:

This product should only be charged with the supplied charger. Use of an incorrect charger may result in unintended consequences.

This product is compliant with Class A EMC requirements. Operation of this device in a residential environment could cause radio interference.

Instructions For Safe Use:

Do not expose the device to water or any other liquid. Liquids may cause a short circuit and damage to the device.

The provided stylus should be used to input on the device. Excessive pressure to the device could crack the device and may also injure the user.

The device should not be used while driving a car or other motor vehicle.

First Time Use/Setup

This section provides basic information to enable you to set up your Signal Analyser quickly.

AERIAL

Connect the aerial on top of the device.

POWERING UP YOUR DEVICE

1. Make sure the battery is fully charged using the Micro USB port on the bottom of the device (this typically takes 2 hours). The device will not operate correctly for surveys or monitoring while a USB is connected.
2. Once power is connected the device will turn on.

THE FIRST EVER POWER UP MAY TAKE 2–3 MINUTES AS THE UNIT WILL BE DOING A BACKGROUND NETWORK SEARCH TO ESTABLISH THE AVAILABLE NETWORKS IN YOUR LOCATION

FITTING A SIM

A SIM is only required when using Monitor Mode and not when performing single or multiple network surveys

1. Ensure your device is powered down and insert the SIM into the SIM slot on the bottom right hand side of your Signal Analyser. To remove the SIM, use a pen to depress before detaching. When a SIM is inserted a SIM Icon will be displayed in the top left hand corner of the screen

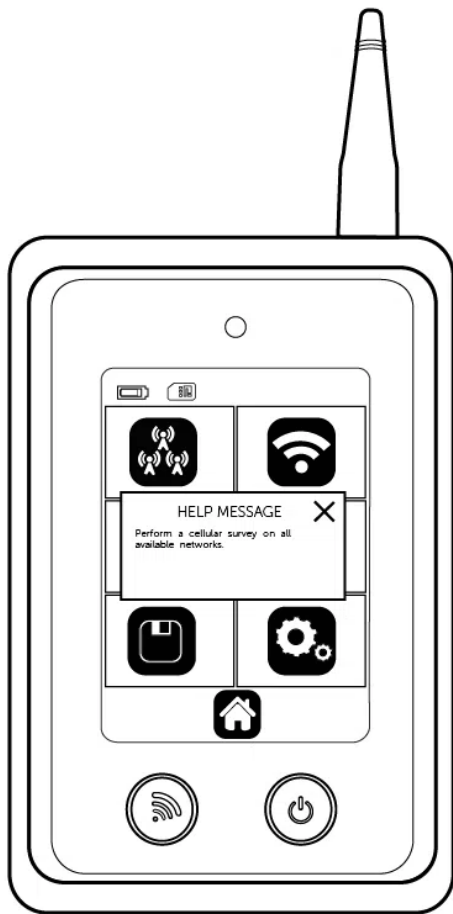
IF YOU WISH TO USE A MICRO/NANO SIM YOU WILL NEED TO USE THE SIM CARRIER SUPPLIED

2. Place the SIM inside the carrier and push this into the SIM slot on the bottom right-hand side of your Signal Analyser. To release use a pen to depress the SIM carrier and then detach

HELP TEXT

1. Press and hold (for 3 seconds) the icon you would like explaining. A pop-up box will then show the description
2. To close the pop-up box press the X in the top right-hand corner

Figure 2 – Help Text



Site Survey (Radio)

MULTI NETWORK SURVEY

- 1 – Select the Cellular icon on the home screen .
- 2 – Select the Multi Network icon .
- 3 – Choose either 2G, 3G, 4G or all technologies (for the 2G variant the technology will be limited to 2G only).
- 4 – Select the Start icon  for the survey to begin. If you wish to name the survey before you start select the Name Survey icon, name your survey  and press Go .
- 5 – A Survey Progress bar will then display the status of your survey. The survey should take 2-3 minutes.
- 6 – Once the survey has been completed the results will be available.

SINGLE NETWORK SURVEY

- 1 – Select the Cellular icon on the home screen .
- 2 – Now select the Single Network icon .
- 3 – Choose either 2G, 3G, 4G or all technologies (for the 2G variant the technology will be limited to 2G only).
- 4 – Select the required network (if you can't see your preferred network press refresh so that the unit locates all available networks in the area). You can also select Any Network option which allows the radio module to decide which is best for your location.

REFRESHING NETWORKS MAY TAKE 2-3 MINUTES

- 5 – Select the Start icon  for the survey to begin. If you wish to name the survey before you start select the Name Survey Icon, name your survey  and press Go .
- 6 – A survey progress bar will then display showing the progress of the survey. The survey should take 2-3 minutes.
- 7 – Once the survey has been completed the results will be available.

Survey Results (Radio)

TOP NETWORKS

Shows the highest signal strength readings for each available network in your location; up to 5 networks will be displayed (if available). Press the right arrow to enter the Best Cells section.

BEST CELLS

Shows the highest signal strength readings across all technologies and networks in your location; up to 5 cells will be displayed (if available). Press the right arrow to enter the Cell Properties section.

CELL PROPERTIES

Shows basic information for each cell. To view advanced information press the screen in the appropriate area. See below for more information. If further results are available use the down arrow to view these.

ADVANCED CELL PROPERTIES

PARAMETER	DESCRIPTION	TECHNOLOGY
Network	The network to which the cell belongs	2G, 3G, 4G
Type	The radio technology	2G, 3G, 4G
Cell Number	The cell number you are investigating	2G, 3G, 4G
ARFCN	The cell carrier assigned radio channel (BCCH – Broadcast Control Channel)	2G
BSIC	Base Station Identification Code	2G
RSSI (RxLev)	Reception Level (in dBm)	2G, 3G, 4G
BER	Bit Error Rate (in %)	2G
MCC	Mobile Country Code	2G, 3G, 4G
MNC	Mobile Network Code	2G, 3G, 4G
LAC	Location Area Code	2G, 3G
CELLID	Cell Identifier	2G, 3G
Cell Status	Cell status; Outputs [suitable, low priority based on the received system information, forbidden, barred based on the received system information, low level, unknown]	2G, 3G, 4G
NUMARFCN	Number of valid channels in the Cell Channel Description	2G
ARFCNN	ARFCN of a valid channel in the Cell Channel Description	2G
NUM CHANNELS	Number of valid channels in the BCCH Allocation list	2G
BAN	The ARFCN of a valid channel in the BA list	2G
SCR CODE	Scrambling Code	3G

RSCP	Received Signal Code Power – RSCP level (in dBm)	3G
ECIO	EC/IO ratio level (in dB)	3G
BW	Bandwidth (in MHz)	4G
TAC	Tracking Area Code	4G
UARFN	The cell carrier frequency designated by UTRA Absolute Radio Frequency Channel	3G
EARFCN	Cell carrier frequency designated by EUTRA Absolute Radio Frequency Channel Number	4G
PHY CELL ID	Physical Cell ID	4G
RSRP	Reference Signal Received Power	4G
RSRQ	Reference Signal Received Quality – RSRQ level (in dBm)	4G

Figure 3 – Cell Properties

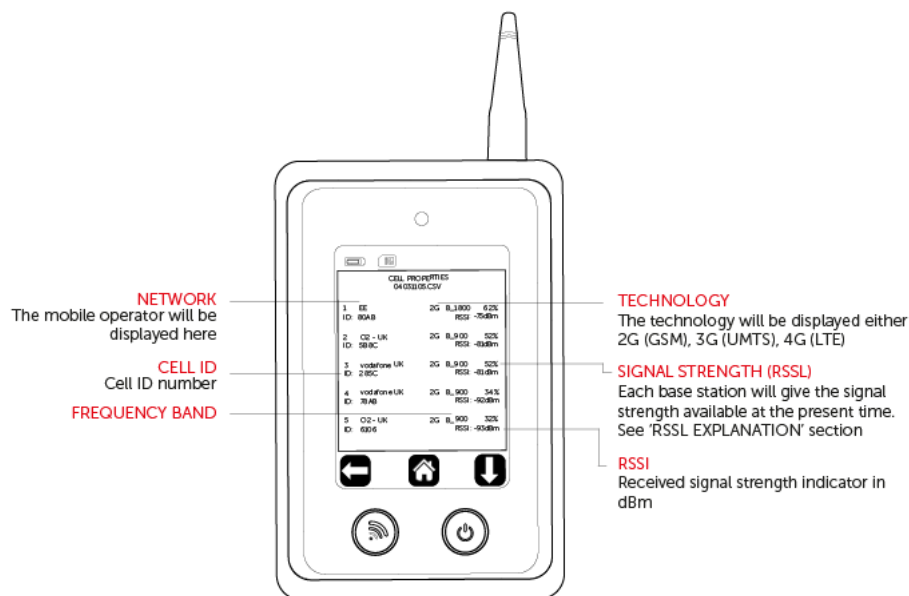
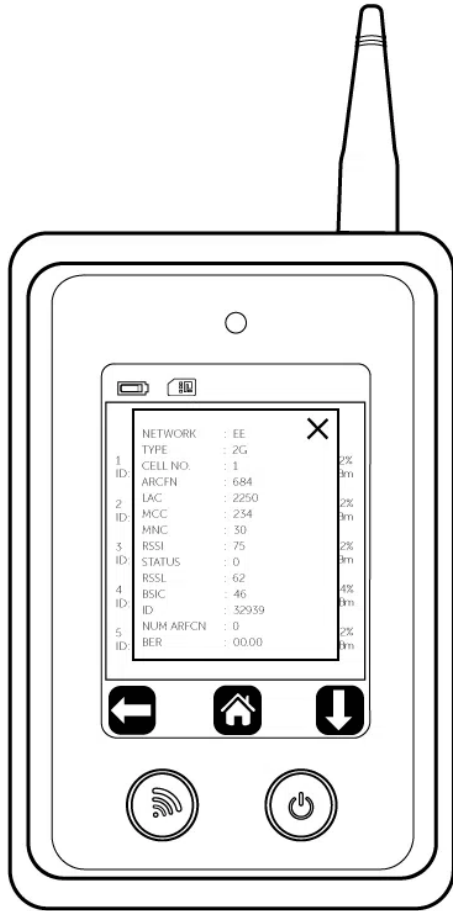


Figure 4 – Advanced Cell Properties



Site Survey (Wi-Fi)

WI-FI SURVEY

- 1 – Select the Wi-Fi icon on the home screen 
- 2 – Select the Start icon  for the survey to begin. If you wish to name the survey before you start select the Name Survey Icon , name your survey, and press Go 
- 3 – A survey progress bar will then display, showing the progress of the survey. The survey should take 5-10 seconds
- 4 – Once the survey has been completed the results will be available

Survey Results (Wi-Fi)

TOP SSID

Shows the highest signal strength readings for each available SSID in your location and the number of Access Points (APs); up to 5 networks will be displayed (if available). Press the right arrow to enter the Best Access Points section.

BEST ACCESS POINTS

Shows the Best Access Points for your location and the channel number. Press the right arrow to enter the Access Point section.

ACCESS POINT PROPERTIES

Shows basic information for each SSID. To view advanced information, press the screen in the appropriate area. See below for more information. If further results are available use the down arrow to view these.

Monitor Mode (Radio)

1 – If you are performing Monitor Mode, ensure a SIM card is inserted as per the 'FITTING A SIM' section. The SIM card used must be the technology required or higher e.g. 4G is capable of performing Monitor Mode for 4G, 3G, and 2G. The SIM does not need to be for the same network provider you wish to monitor.

2 – Select the Monitor Mode icon .

3 – Select the Single Network icon .

4 – Choose either 2G, 3G or 4G or any network (for the 2G variant the technology will be limited to 2G only).

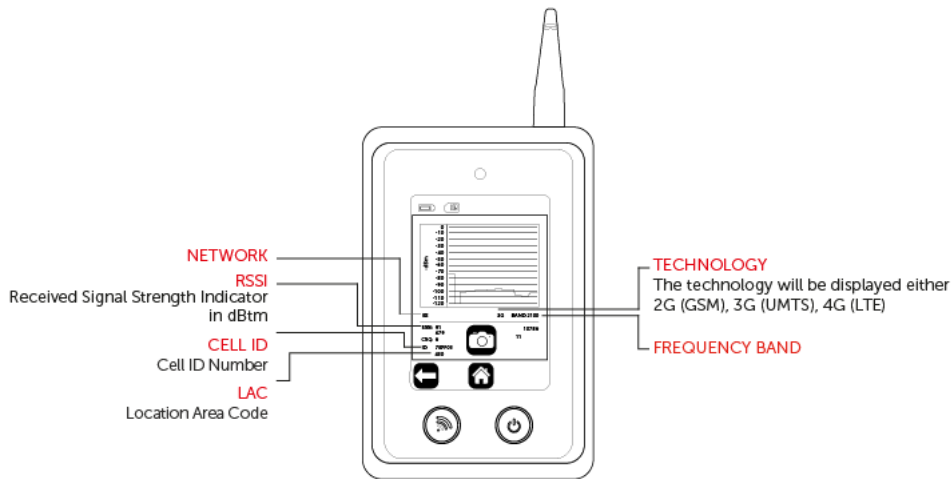
5 – Select the required network (to ensure all available networks are displayed press refresh).

REFRESHING NETWORKS MAY TAKE 2-3 MINUTES

6 – Live Monitor Mode will now run.

Monitor Mode Result (Radio)

Figure 5 – Monitor Mode



MONITOR MODE SNAPSHOT

1 – Ensure Monitor Mode is running

2 – Press the Snapshot icon



3 – The rename survey option will automatically display, name the survey then press Go  to save. A file will now be created, but can only be viewed in a table format on your laptop/PC (you will not see a graph).

Monitor Mode (Wi-Fi)

1 – Select the Monitor Mode icon



2 – Select the Wi-Fi icon



3 – Choose either SSID, Channel, MAC, Connect

SSID

Live Monitor Mode will run on a specific SSID

1 – Select the SSID icon



2 – Choose the SSID you wish to monitor (to ensure all available SSIDs are displayed press refresh)

3 – Live Monitor Mode will now run

CHANNEL

Live Monitor Mode will run on a specific channel

1 – Select Channel icon



2 – Choose the channel you wish to monitor

3 – Live Monitor Mode will now run a list of Access Points (APs) per channel which will be displayed via a table. Push any channel with APs present to view the SSIDs and signal strengths (in dBm)

MAC

Live Monitor Mode will run on a specific MAC address

1 – Select MAC icon



2 – Select the MAC address you wish to monitor

3 – Live Monitor Mode will now run

CONNECT

Connect to a specific SSID and run live Monitor Mode

1 – Select the connect icon



and it will constantly signal Google to provide you with ping times in ms

2 – Select the SSID you wish to connect to

3 – Enter the password for the SSID you have selected

4 – Live Monitor Mode will now run

Monitor Mode Results (Wi Fi)

SAVE RESULTS

1 – Ensure Monitor Mode is running

2 – Press the Save Results icon



3 – The Rename Survey option will automatically display, name the survey then press Go  to save. A file will now be created, but can only be viewed in a table format on your laptop/PC (you will not see a graph)

Figure 6 – Wi-Fi monitor when SSID, MAC and Connect options are selected

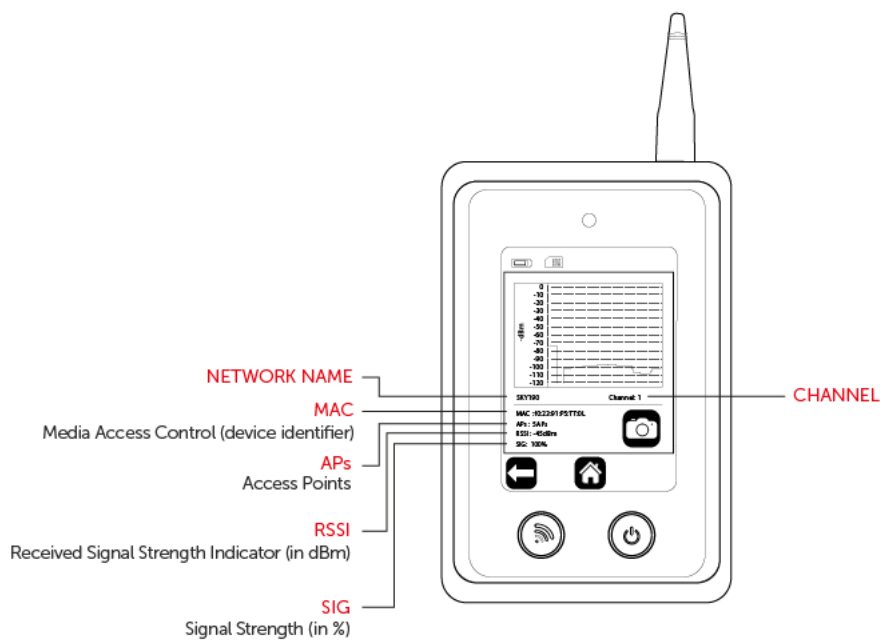
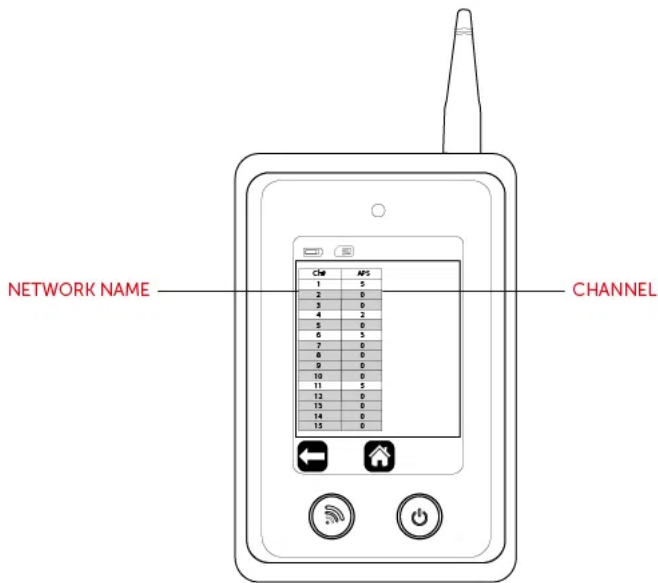


Figure 7 – Wi-Fi monitor when the Channel option is selected



Saved Files

Viewing Saved Files

- 1 – Select the Saved Results icon . Results will be shown in descending order by time.
- 2 – Then select either the Multi Cellular icon  or Wi-Fi . Results will be shown in descending order by time.
- 3 – Select the file you wish to view. Results will now be shown in the same format as per the 'RESULTS' section.

Deleting Saved Files

- 1 – Select and hold the file you wish to delete. A Delete icon  will now show in the top right hand corner.
- 2 – Press delete. This file has now been deleted.

Downloading Saved Files

- 1 – Ensure the Signal Analyser is switched on.

IF THE DEVICE IS SWITCHED OFF AND CONNECTED TO THE USB PORT ON A PC/LAPTOP THIS WILL CHARGE THE DEVICE ONLY

2 – Connect the Signal Analyser via a USB lead to your PC/Laptop.

3 – Once connected click on Start then select Computer. The Signal Analyser files will be shown under devices with removable storage.

4 – Select Analyser.

5 – Select the applicable folder (Cellular Snapshot, Cellular Survey, Wi-Fi Snapshot and Wi-Fi Survey) and your results will be displayed as a list of CSV files.

6 – These files can now be copied to a folder or displayed using a CSV file editor.

YOU CANNOT READ/WRITE FILES AND RUN A SURVEY WHILE THE SIGNAL ANALYSER IS CONNECTED TO THE USB PORT, THIS MAY CAUSE THE UNIT TO CRASH

Settings

Enter the settings menu

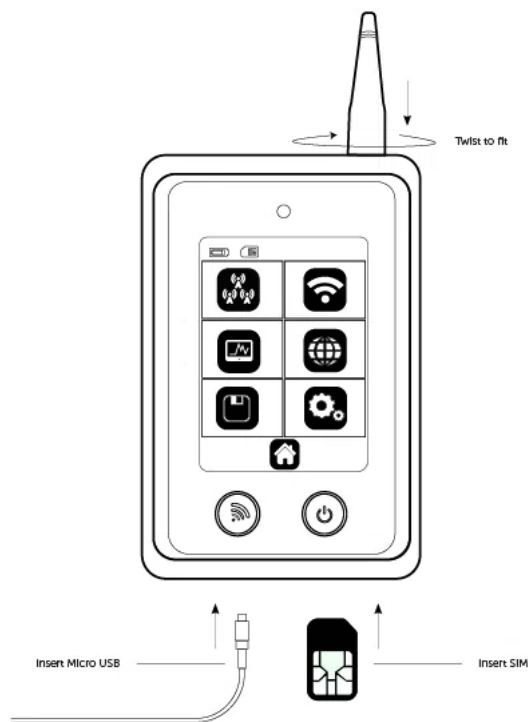
ICON	DESCRIPTION	FUNCTION
Brightness Icon 	Adjust brightness	Increase/decrease brightness
Languages Icon 	Change device language	Select language
Time Icon 	Set time/date	Set time/date

Auto-Off Icon 	Define how long the device stays powered on with no action	Set auto-off time
Default Survey Icon 	Define which survey the quick survey button on the front of the device executes	Select survey
Sounder Icon 	Turn sound on/off	Turn sound on/off
Power Save Icon 	Power saver to send radio module to sleep	Turn power save on/off
Device Information Icon 	View firmware version	View firmware version, Radio module, Radio firmware, IMEI, SIM status
Factory Reset Icon 	Restore factory defaults	Complete a factory reset back to default settings

Technical Specs

Technical Specifications

Figure 1 – Signal Analyser Diagram



SPECIFICATIONS

Model	CS2389 2G/GSM, 3G/UMTS, 4G/LTE
Dimensions	172mm (h) x 72mm (w) x 20mm (d)
Weight	149g including aerial
Temperature	-20°C to +60°C transit, -4°C to +40°C operating
Humidity	0-80% non-condensing
Warranty	2 years
Radio Technology	GSM, UMTS, LTE, Wi-Fi 2.4Ghz (depending on version)

Battery	3.7 Volt 1500mAh
Charger	5 Vdc micro USB plug-top charger or equivalent

FREQUENCY BAND

Part Number	CS2389
4G Bands (MHz)	2100 (B1) 1900 (B2) 1800 (B3) 1700 (B4) 850 (B5) 2600 (B7) 900 (B8) 700 (B12) 700 (B13) 700 (B14) 850 (B18) 1900 (B25) 850 (B26) 850 (B19) 800 (B20) 700 (B28)
3G Bands (MHz)	2100 (B1) 1900 (B2) 1700 (B4) 850 (B5) 850 (B6) 900 (B8) 850 (B19)
2G Bands (MHz)	1900 (B2) 1800 (B3) 850 (B5) 900 (B8)
Wi-Fi	2.4Ghz

CERTIFICATIONS

International Radio Approval

The CS2389 Signal Analyser incorporates an independently tested and approved 4G/3G/2G radio module that meets the requirements of European radio communication standards

Approval Authority: 0063



FAQs

Does the 4G Analyser work outside of the EU?

The radio module in the device is able to work worldwide and therefore the device is able to work in most countries, subject to local approval.

Does the 4G Analyser work in the Republic of Ireland?

Yes, the 4G Signal Analyser works in Ireland.

Is Wi-Fi included in all 4G Testers?

Yes, there is a 2.4GHz Wi-Fi chip included with the Signal Analyser to perform Wi-Fi Surveys or run Monitor Mode to view the available SSIDs, channels or MAC addresses and to ping an IP address to check response times.

Do I need to use a SIM?

A SIM is not needed for surveys. It is only required when using Monitor Mode.

The SIM used must be at least the same RAT (i.e. 2G/3G/4G) that you are looking to monitor but should be a roaming SIM. Speak to CSL about purchasing one of these if you do not have one.

Can I use my own SIM?

Yes, any SIM can be used as long as the pin code function has been removed.

If you wish to use a micro or nano SIM, the SIM carrier provided must be used to make it the required size and ensure it fits into the device correctly.

I am running a survey but want to cancel?

While a survey is running you cannot cancel or complete any other actions, you must wait for the survey to complete or power off the device.

What is the difference between Battery Saver and Auto Turn Off?

Battery Saver puts the radio module into sleep mode and dims the brightness of the screen to save battery power.

Auto Turn Off enables you to select a time, that if the unit is not in use, it will automatically power off to conserve battery power (as standard this is set to 5 minutes).

Why can't I see all the networks? (in Single Network or Monitor Mode)

If you can't see your preferred network try refreshing the network. After this refresh the networks available in your location will be displayed. If you still can't see your chosen network, it may be that it is not available in that area.

What do the icons mean?

If you are unsure what the function of an icon is, you can use the **Help Text** function to display a description (press and hold the icon for 3 seconds).

My device appears to be performing slower than it used to. What is the cause?

If your Signal Analyser is close to reaching the maximum number of saved files (240), it takes longer to process tasks. Delete old saved files to free up space.

Instructions can be found under the 'DELETING SAVED FILES' section in the Quick Guide.

To view the storage space, go to:

Settings > Device Information (it will be shown within the storage space bar).

Why does the device take so long to boot up?

The boot up sequence ensures the radio module is ready to use. With newer versions of the product, this boot up time has been extended to incorporate the worldwide radio module being ready to start a survey.

Useful Information

Signal Analyser Datasheet



Key Features

- Ideal for deploying any mobile application
- Live monitor function to find the optimum installation location (SIM required for 4G)
- 4G versions are backwards compatible (2G/3G/4G)
- 2.4Ghz Wi-Fi (4G version only)
- Rechargeable battery with up to an hour of life and additional battery-saving options
- Multilingual – 11 languages
- Download survey results and live monitor results via USB
- Rain-resistant material and a durable protective cover is provided
- Automatic power down when not in use

Specification

Model	CS2389 (2G/GSM, 3G/UMTS, 4G/LTE)
Dimensions	172mm (h) x 72mm (w) x 20mm (d)
Weight	149g including aerial

Temperature	-20°C to +60°C transit, -4°C to +40°C operating
Humidity	0-80% non-condensing
Warranty	2 years
Radio Technology	2G/GSM, 3G/UMTS, 4G/LTE (depending on version) 2.4ghz Wi-Fi (4G version only)
Battery	3.7 Volt 1500mAh
Aerial	SMA Male connector
Charger	5 Vdc micro USB plug-top charger or equivalent
Screen Size	2.8 inch (7.1cm)
Screen Resolution	320 X 240
Screen Type	Resistive touch screen
Memory	Holds up to 240 surveys
Languages	English, German, Spanish, Italian, French, Danish, Dutch, Finnish, Czech, Portuguese, Swedish
Approval	CE

Bands

Part Number	CS2389
4G (LTE) Bands (MHz)	2100 (B1) 1900 (B2) 1800 (B3) 1700 (B4) 850 (B5) 2600 (B7) 900 (B8) 700 (B12) 700 (B13) 700 (B14) 850 (B18) 1900 (B25) 850 (B26) 850 (B19) 800 (B20) 700 (B28)
3G (UMTS) Bands (MHz)	2100 (B1) 1900 (B2) 1700 (B4) 850 (B5) 850 (B6) 900 (B8) 850 (B19)
2G (GSM) Bands (MHz)	1900 (B2) 1800 (B3) 850 (B5) 900 (B8)

RSSL Explained

Background

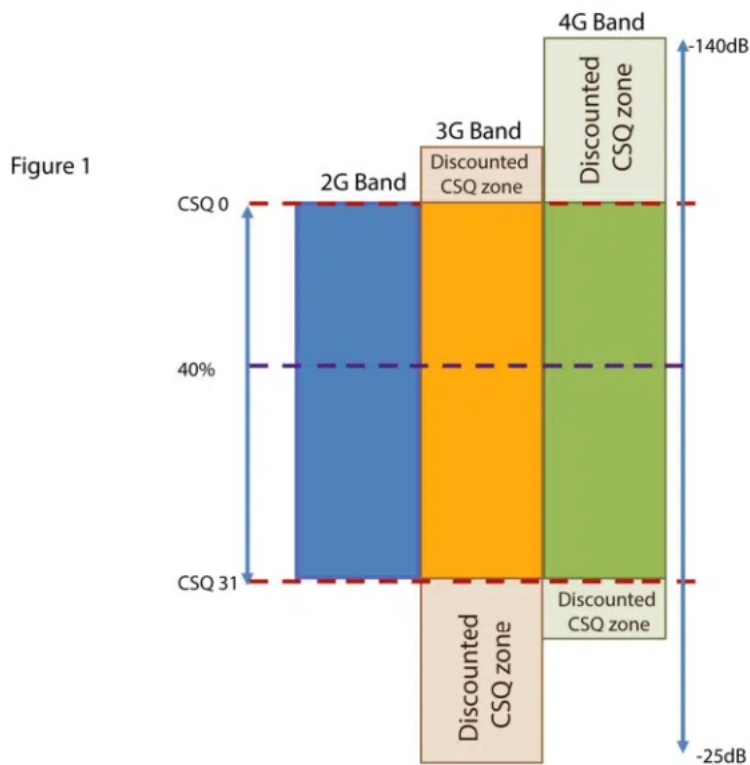
RSSL (Relative Signal Strength Level) is a signal strength calculation designed to make it easier for users to understand if the location of their installation is acceptable or not. For performing surveys on 2G (GSM), CSQ was formerly an easy way to measure the signal strength reading. However, this measurement is not consistent across 3G (UMTS) and 4G (LTE) as CSQ does not measure the entire signal strength band. It merely measures a segment of the band with discounted sections above and below the traditional CSQ. For example: A CSQ of 1 in 4G relates to 3% using old CSQ calculations but is actually 32% of the entire signal strength. In this scenario, it is unlikely you would install a device with a perceived value of 3% but possible at 32%.

RSSL Explained

To ensure that a consistent approach is used to measure all Radio Access Technologies (RAT) – such as 2G, 3G and 4G – a new, more accurate method for calculating the percentage of the signal strength has been introduced. RSSL is not based on CSQ readings provided by the radio module alone but is calculated from the raw data received from the network readings. The value is mapped through the whole range and is independent for each RAT. The value calculation includes both signal strength and signal quality measurements.

What Does This Mean?

- The method for obtaining signal levels is technology-independent.
- The minimum CSQ required for units to register in 2G, 3G and 4G are different. The standards only specify minimum thresholds for each type of measurement required by the UE to report to the core network. The requirements for data transmission depend on a wide range of factors e.g. indoor/outdoor cell, in urban or remote location, proximity to the base station.
- Percentage representation of CSQ is not relevant, accurate or consistent. Figure 1 depicts the summary of the problem. Clearly using CSQ values omits substantial sections of the 3G and 4G band and what is 40% of the CSQ range in 2G is not equivalent in the other RATs. Achieving the equivalent of 40% CSQ in 2G at the other RATS will be very difficult unless there are strong cells in the neighbourhood.
- It is possible to receive signal levels in the discounted CSQ areas, and in fact the 3GPP specifications clearly indicate that it is possible for 4G to operate below a CSQ of 0.



	2G			3G			4G		
dB	CSQ Reading	Proposed RSSL (%)	Remark	CSQ Reading	Proposed RSSL (%)	Remark	CSQ Reading	Proposed RSSL (%)	Remark
-140	0	0	Weak	0	0	Weak	0	0	Weak
-139	0	0	Weak	0	0	Weak	0	1	Weak
-138	0	0	Weak	0	0	Weak	0	2	Weak
-137	0	0	Weak	0	0	Weak	0	3	Weak
-136	0	0	Weak	0	0	Weak	0	4	Weak
-135	0	0	Weak	0	0	Weak	0	6	Weak
-134	0	0	Weak	0	0	Weak	0	7	Weak
-133	0	0	Weak	0	0	Weak	0	8	Weak
-132	0	0	Weak	0	0	Weak	0	9	Weak

-131	0	0	Weak	0	0	Weak	0	10	Weak
-130	0	0	Weak	0	0	Weak	0	11	Weak
-129	0	0	Weak	0	0	Weak	0	12	Weak
-128	0	0	Weak	0	0	Weak	0	13	Weak
-127	0	0	Weak	0	0	Weak	0	15	Weak
-126	0	0	Weak	0	0	Weak	0	16	Weak
-125	0	0	Weak	0	0	Weak	0	17	Weak
-124	0	0	Weak	0	0	Weak	0	18	Weak
-123	0	0	Weak	0	0	Weak	0	19	Weak
-122	0	0	Weak	0	0	Weak	0	20	Weak
-121	0	0	Weak	0	0	Weak	0	21	Weak
-120	0	0	Weak	0	0	Weak	0	22	Weak
-119	0	0	Weak	0	2	Weak	0	24	Weak
-118	0	0	Weak	0	3	Weak	0	25	Weak
-117	0	0	Weak	0	5	Weak	0	26	Weak
-116	0	0	Weak	0	6	Weak	0	27	Weak
-115	0	0	Weak	0	8	Weak	0	28	Weak
-114	0	0	Weak	0	9	Weak	0	29	Weak
-113	0	0	Weak	0	11	Weak	0	30	Low
-112	0	2	Weak	0	12	Weak	0	31	Low
-111	1	3	Weak	1	14	Weak	1	32	Low
-110	2	5	Weak	2	15	Weak	2	34	Low
-109	2	7	Weak	2	17	Weak	2	35	Low

-108	3	8	Weak	3	18	Weak	3	36	Low
-107	3	10	Weak	3	20	Weak	3	37	Low
-106	4	12	Weak	4	21	Weak	4	38	Low
-105	4	13	Weak	4	23	Weak	4	39	Low
-104	5	15	Weak	5	24	Weak	5	40	Good
-103	5	16	Weak	5	26	Weak	5	41	Good
-102	6	18	Weak	6	27	Weak	6	43	Good
-101	6	20	Weak	6	29	Weak	6	44	Good
-100	7	21	Weak	7	31	Low	7	45	Good
-99	7	23	Weak	7	32	Low	7	46	Good
-98	8	25	Weak	8	34	Low	8	47	Good
-97	8	26	Weak	8	35	Low	8	48	Good
-96	9	28	Weak	9	37	Low	9	49	Good
-95	9	30	Low	9	38	Low	9	50	Good
-94	10	31	Low	10	40	Good	10	52	Good
-93	10	33	Low	10	41	Good	10	53	Good
-92	11	35	Low	11	43	Good	11	54	Good
-91	11	36	Low	11	44	Good	11	55	Good
-90	12	38	Low	12	46	Good	12	56	Good
-89	12	39	Low	12	47	Good	12	57	Good
-88	13	41	Good	13	49	Good	13	58	Good
-87	13	43	Good	13	50	Good	13	59	Good
-86	14	44	Good	14	52	Good	14	60	Strong

-85	14	46	Good	14	53	Good	14	62	Strong
-84	15	48	Good	15	55	Good	15	63	Strong
-83	15	49	Good	15	56	Good	15	64	Strong
-82	16	51	Good	16	58	Good	16	65	Strong
-81	16	53	Good	16	59	Good	16	66	Strong
-80	17	54	Good	17	61	Strong	17	67	Strong
-79	17	56	Good	17	63	Strong	17	68	Strong
-78	18	58	Good	18	64	Strong	18	69	Strong
-77	18	59	Good	18	66	Strong	18	71	Strong
-76	19	61	Strong	19	67	Strong	19	72	Strong
-75	19	63	Strong	19	69	Strong	19	73	Strong
-74	20	64	Strong	20	70	Strong	20	74	Strong
-73	20	66	Strong	20	72	Strong	20	75	Strong
-72	21	67	Strong	21	73	Strong	21	76	Strong
-71	21	69	Strong	21	75	Strong	21	77	Strong
-70	22	71	Strong	22	76	Strong	22	78	Strong
-69	22	72	Strong	22	78	Strong	22	80	Strong
-68	23	74	Strong	23	79	Strong	23	81	Strong
-67	23	76	Strong	23	81	Strong	23	82	Strong
-66	24	77	Strong	24	82	Strong	24	83	Strong
-65	24	79	Strong	24	84	Strong	24	84	Strong
-64	25	81	Strong	25	85	Strong	25	85	Strong
-63	25	82	Strong	25	87	Strong	25	86	Strong

-62	26	84	Strong	26	88	Strong	26	87	Strong
-61	26	86	Strong	26	90	Strong	26	88	Strong
-60	27	87	Strong	27	92	Strong	27	90	Strong
-59	27	89	Strong	27	93	Strong	27	91	Strong
-58	28	91	Strong	28	95	Strong	28	92	Strong
-57	28	92	Strong	28	96	Strong	28	93	Strong
-56	29	94	Strong	29	98	Strong	29	94	Strong
-55	29	95	Strong	29	99	Strong	29	95	Strong
-54	30	97	Strong	31	100	Strong	30	96	Strong
-53	30	99	Strong	31	100	Strong	30	97	Strong
-52	31	100	Strong	31	100	Strong	31	99	Strong
-51	31	100	Strong	31	100	Strong	31	100	Strong
-50	31	100	Strong	31	100	Strong	31	100	Strong
-49	31	100	Strong	31	100	Strong	31	100	Strong
-48	31	100	Strong	31	100	Strong	31	100	Strong
-47	31	100	Strong	31	100	Strong	31	100	Strong
-46	31	100	Strong	31	100	Strong	31	100	Strong
-45	31	100	Strong	31	100	Strong	31	100	Strong
-44	31	100	Strong	31	100	Strong	31	100	Strong
-43	31	100	Strong	31	100	Strong	31	100	Strong
-42	31	100	Strong	31	100	Strong	31	100	Strong
-41	31	100	Strong	31	100	Strong	31	100	Strong
-40	31	100	Strong	31	100	Strong	31	100	Strong

-39	31	100	Strong	31	100	Strong	31	100	Strong
-38	31	100	Strong	31	100	Strong	31	100	Strong
-37	31	100	Strong	31	100	Strong	31	100	Strong
-36	31	100	Strong	31	100	Strong	31	100	Strong
-35	31	100	Strong	31	100	Strong	31	100	Strong
-34	31	100	Strong	31	100	Strong	31	100	Strong
-33	31	100	Strong	31	100	Strong	31	100	Strong
-32	31	100	Strong	31	100	Strong	31	100	Strong
-31	31	100	Strong	31	100	Strong	31	100	Strong
-30	31	100	Strong	31	100	Strong	31	100	Strong
-29	31	100	Strong	31	100	Strong	31	100	Strong
-28	31	100	Strong	31	100	Strong	31	100	Strong
-27	31	100	Strong	31	100	Strong	31	100	Strong
-26	31	100	Strong	31	100	Strong	31	100	Strong
-25	31	100	Strong	31	100	Strong	31	100	Strong

Signal Analyser Firmware Upgrade Instructions

Step 1

Contact your distributor/place of purchase to obtain a copy of the DfuSe Demo Software required. Install this software on your PC/laptop. Then install the relevant USB driver from:

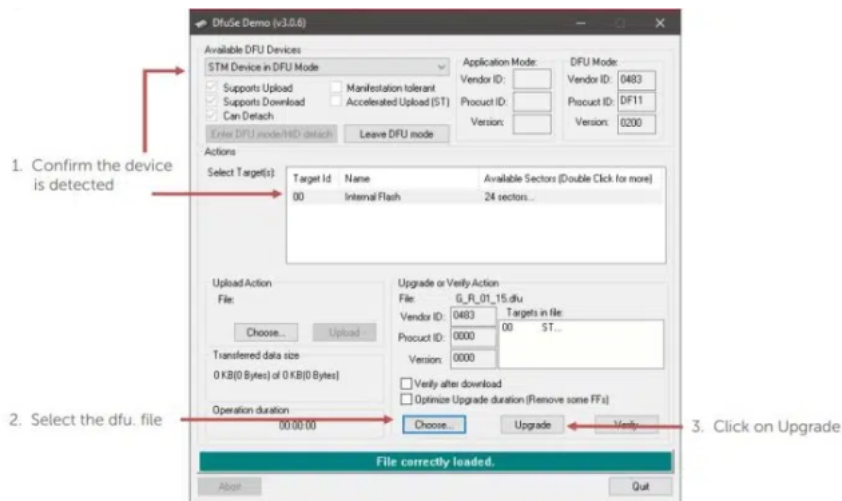
C:\Program Files (x86)\STMicroelectronics\Software\DfuSe vx.x.x\Bin\Driver

Step 2

With your Signal Analyser powered off, press and hold the 'quick survey' button whilst inserting your USB cable into the Signal Analyser and into your PC/Laptop. Once both are connected, release the button. The green LED will flash repeatedly to confirm you are in upgrade mode.

Step 3

Open the DfuSe Demo Software and follow the points below.



Step 4

Accept any pop-up messages from the DFuSe software to proceed with the upgrade. Once loaded the software will show that the firmware upgrade has been successful/unsuccessful via the green progress bar.

Step 5

Unplug the USB cable and restart the Signal Analyser. On start-up, the Signal Analyser will display the firmware version (ie G_1_15).

Step 6

It is recommended to format the Signal Analyser once a firmware update has been completed. On your PC/laptop enter the [Computer] menu, locate the Signal Analyser, right click and select format. Click start to format the drive (see image on next page).

