

The Industry's Broadest Portfolio of Wireless IoT Modules



IoT Modules



Cellular
4G, LTE, 3G & 2G



Positioning
GPS & GNSS



LPWA



Automotive



Wi-Fi & Bluetooth



**Sub-1GHz,
Wireless M-Bus**

LTE Cat 1 ... M1..... NB-IoT.....

Confidential & Proprietary



Technology Comparison (LTE)

- Globally available
- 5Mb UL / 10Mb DL
- 2 antennas (MIMO)
- Full Mobility
- Voice (VoLTE)
- PSM (power saving mode *)
- NO extended coverage
- FOTA

Cat-1
(Rel8)



- 2018-2019 Varies by MNO
- 500Kbps Mb UL/DL (half duplex)
- 1 antenna (SISO)
- Full Mobility (Mode A coverage)
- No Voice now (3gpp rel14 ~ 2018)
- PSM & eDRX
- extended coverage up to 10 dB (Mode A)
- FOTA

Cat-M1
(Rel13)

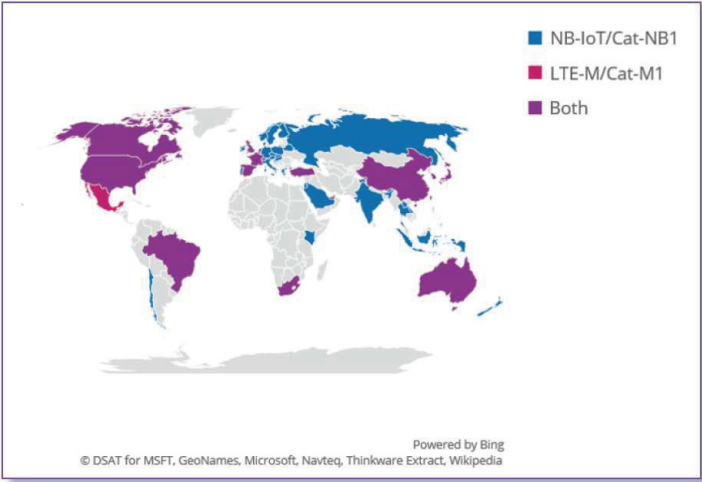


- 2018-2019 Varies by MNO
- 20 Kbps UL (single tone) & 250 Kbps DL
- 1 antenna (SISO)
- No Connected mode mobility
- No Voice
- PSM & eDRX
- extended coverage up to 24 dB
- *FOTA TBD*

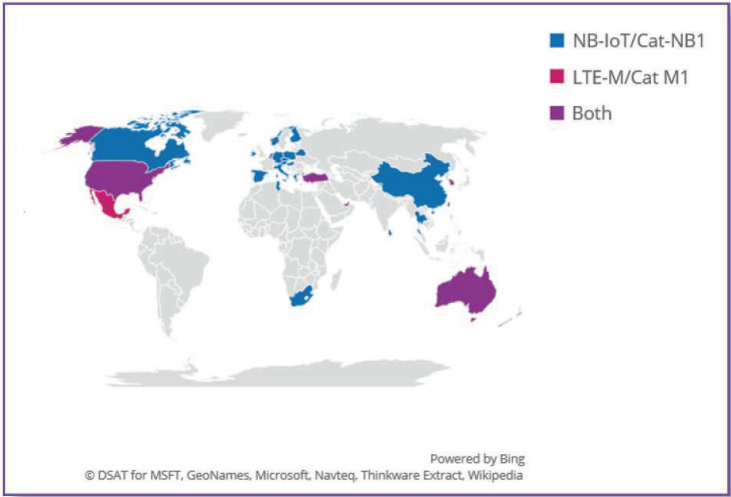
NB1
(Rel13)



Coverage - IoT Global Status of LPWA (February 2018)



Map of NB-IoT / LTE-Cat M1 investments by country

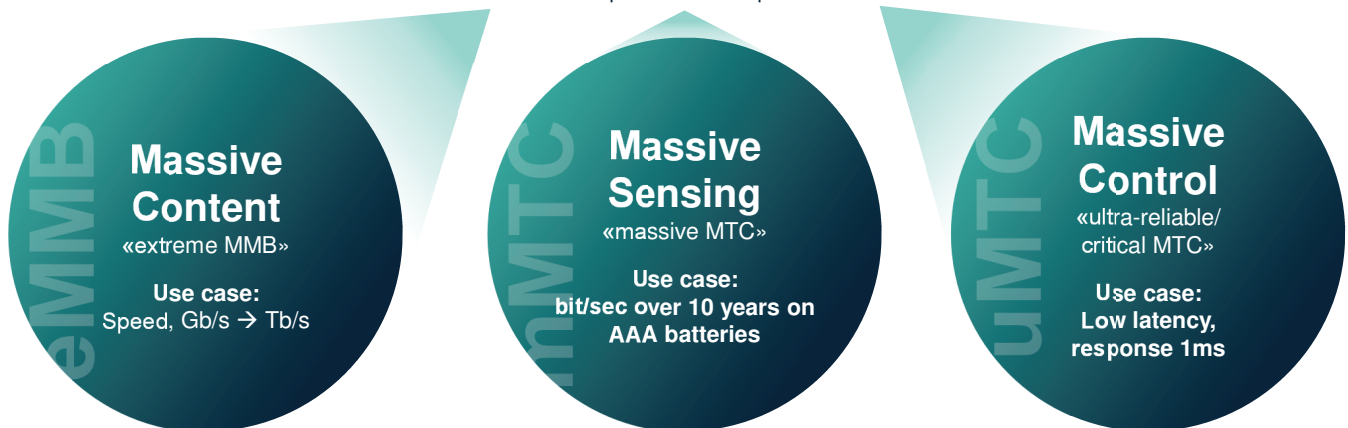


Launched IoT networks by type

What about 5G?: multiple standards serve multiple needs

5G embraces several aspects and different requirements in three major scenarios:

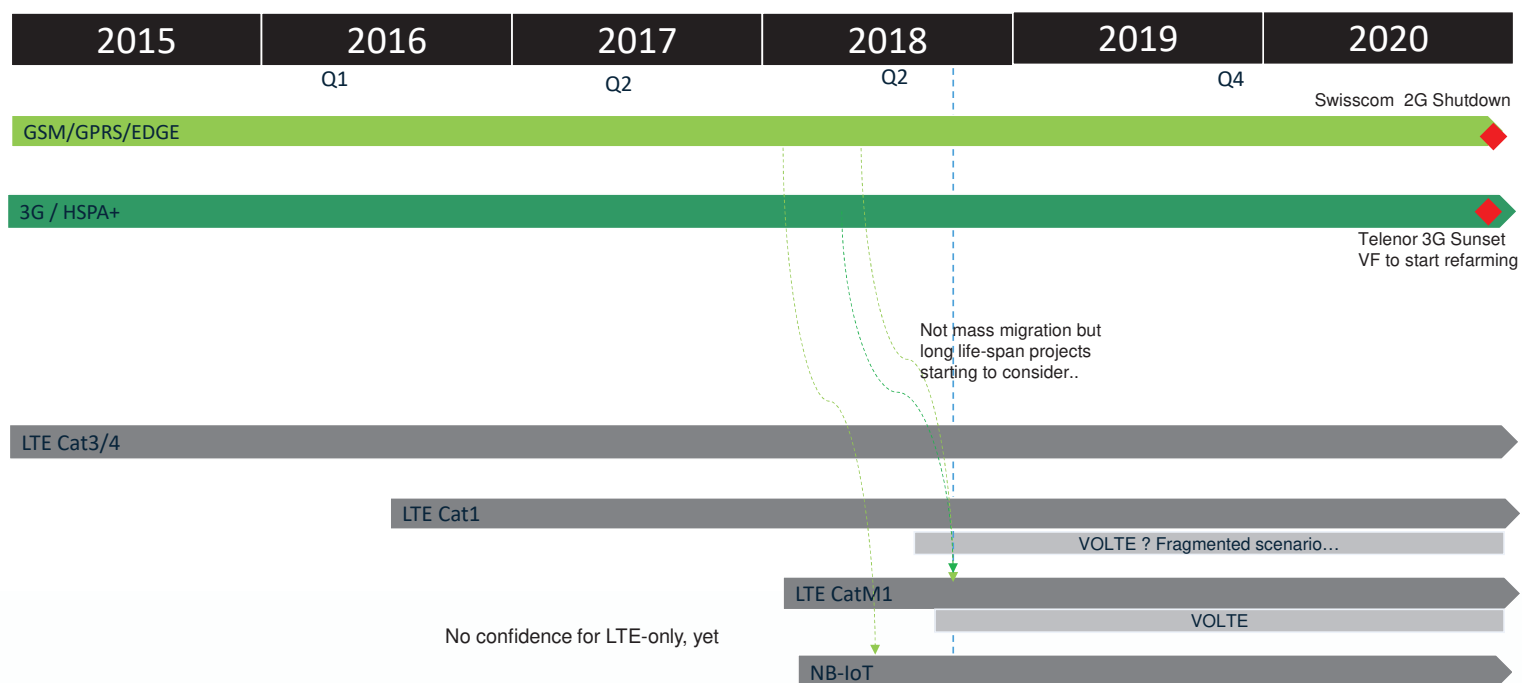
eMBB | mMTC | uMTC



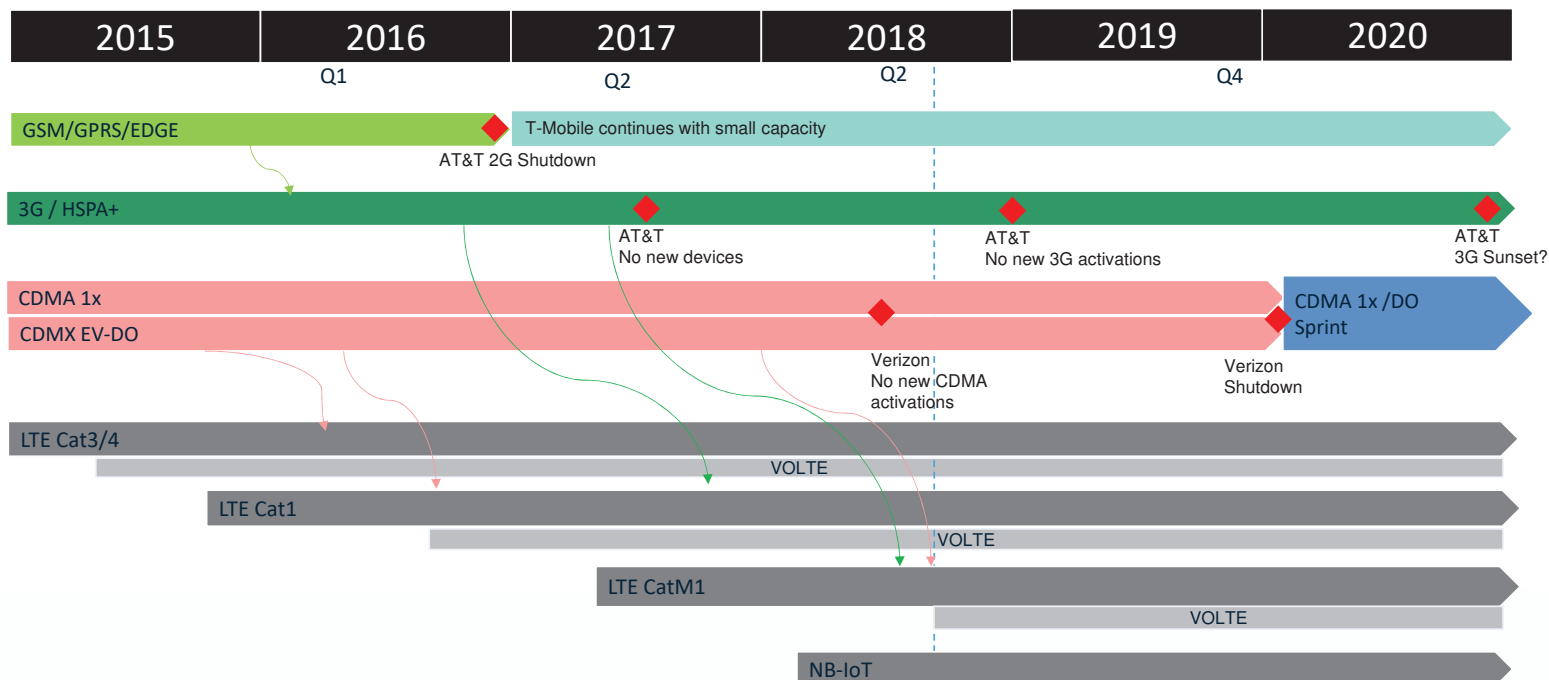
NB-IoT/CatM are fundamental to mMTC 5G!

<https://www.gsma.com/newsroom/press-release/new-gsma-report-highlights-integral-role-of-mobile-iot-networks-in-5g-future/>

IoT Technology Deployment Status – EMEA



IoT Technology Deployment Status – USA





Cat M1 + NB-IoT

+ 2G and GNSS too!

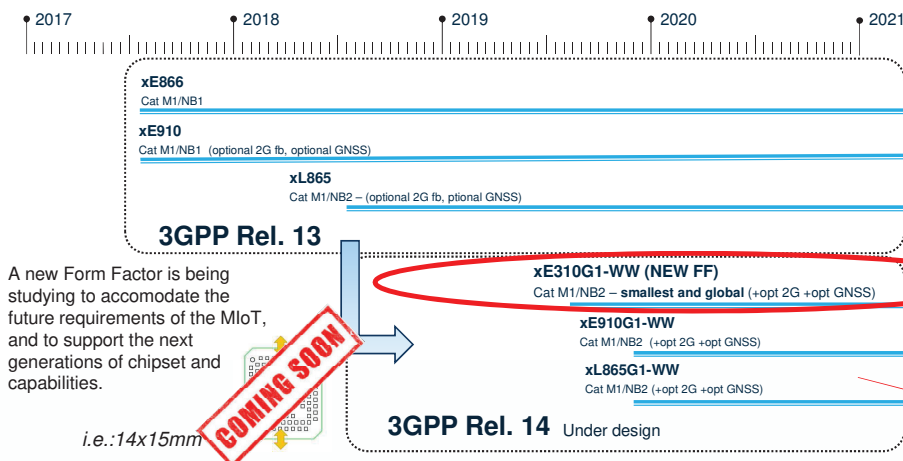
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What's next with 3GPP Rel.14

Enhanced features compared to Rel.13

- Single-cell multicast
- Device positioning (OTDOA)
- Mobility improvements
- Higher data-rates
- VoLTE improvements (for FeMTC)



Highlights

- At least 1 year from 3GPP standard definition to real deployments
- Starting to be relevant in 2019
- Telit has it in roadmap
- Not a replacement, but a new parallel offering

Rel.14 LTE cat.M1
Rel.14 LTE Cat.NB2
w/ CE Mode B

VoLTE, GNSS and security enhancements
Current consumption: 70% less in PSM deep-sleep
85% reduction in eDRX current

MKT samples Q1
ENG Samples Q2
MP mid-2019

One Global variant merging the current variants NA&EA

ME310G1 Overview

LTE Cat. M1/NB2

Specifications

Form Factor	xE310 LGA 15x14mm (tbc)	Application Development Environment	APPZONE
Region(s)	NA / EMEA / ANZ / Korea / Japan, + GLOBAL SKU	Memory (available for integrators)	tbd
Operator(s) / Bands	Verizon, AT&T, EMEA, Others	Drivers Support	Windows, Linux, Android
Interfaces	Integrated: USB 2.0 HS, UART, SPI, I ² C, 1.8 / 3 V SIM Interface	FOTA	Yes
Software Features	Embedded TCP/IP, SSL	DM	LWM2M
Temperature (operating)	-40°C to + 85°C	Cloud	Telit IoT Portal
Power Supply	3.8 VDC	GNSS	Yes
Voice	VoLTE	Approvals	FCC/IC, GCF, RED PTCRB, RCM, Jate/Telec, ...AT&T, Verizon and other carriers for a global deployments

COMING SOON

Key Benefits:

- 3GPP Rel. 14 Cat. M1/NB1 evolution in the new Telit form factor xE310
- Small form factor ideal for small ID products like trackers and wearables.

Applications:

Perfect platform for Global IoT applications such as, consumer trackers, pet trackers, smart metering, security & surveillance, point of sale, health monitoring, fleet management, asset tracking and wearable devices

Availability:

Q3'19

Link:

xE310G1 Roadmap

COMING SOON

xE310G1 Series
Embedded

New

ME310G1-WW (Global) 3GPP Rel.14

Cat. M1 / NB2 single SKU

Low Bands: B5, B8, B12, B13, B14, B17, B18, B19, B20, B26, B28, B71, B72, B73, B85
Mid Bands: B1, B2, B3, B4, B25, B66

Opt. GSM/GPRS,
Opt. GNSS

2G 4G

2017

Q1 Q2 Q3 Q4

2018

Q1 Q2 Q3 Q4

2019

Q1 Q2 Q3 Q4

2020

Q1 Q2 Q3 Q4

ENG MP

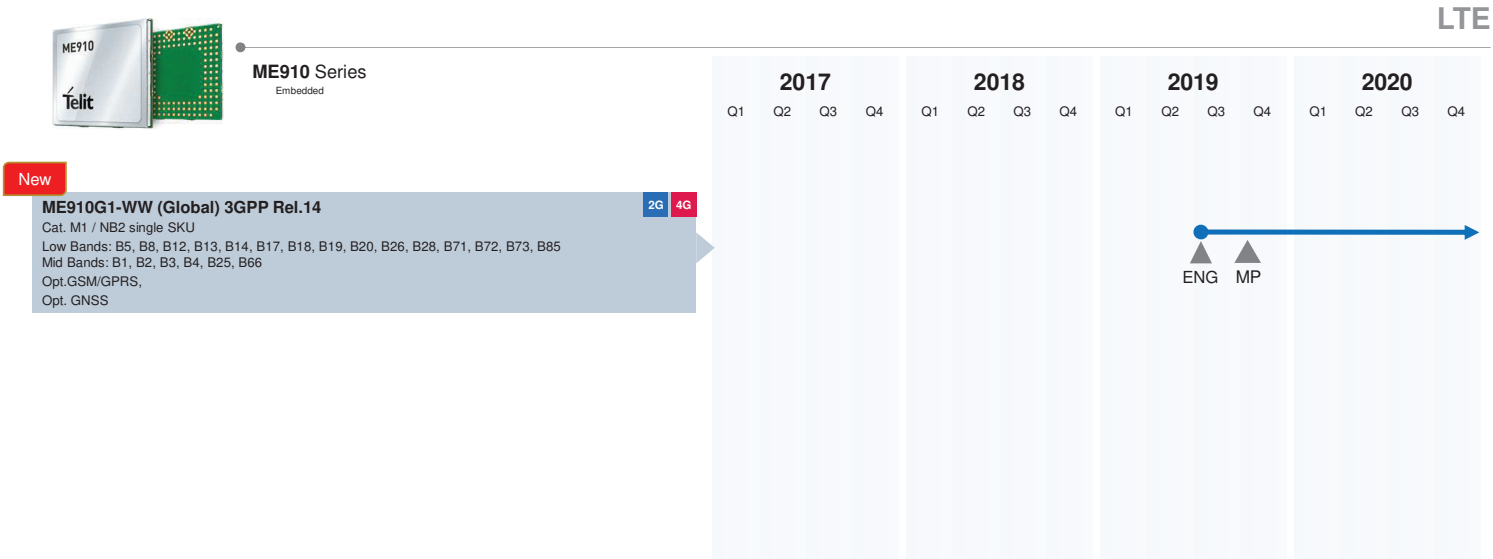
ENG MF

MAINTENANCE RELEASE

IN PRODUCTION

IN DEVELOPMENT

ME910G1 Roadmap



▲ ▼ MAINTENANCE RELEASE

IN PRODUCTION IN DEVELOPMENT

ML865G1 Roadmap



ML865G1 Series
Embedded

New

ML865G1-WW (Global) 3GPP Rel.14

Cat. M1 / NB2 single SKU

Low Bands: B5, B8, B12, B13, B14, B17, B18, B19, B20, B26, B28, B71, B72, B73, B85
Mid Bands: B1, B2, B3, B4, B25, B66

Opt. GSM/GPRS.

Opt. GNSS

2G 4G

2017

Q1 Q2 Q3 Q4

2018

Q1 Q2 Q3 Q4

2019

Q1 Q2 Q3 Q4

2020

	Q1	Q2	Q3	Q4
1	1	1	1	1
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ENG MP

MAINTENANCE RELEASE

IN PRODUCTION

IN DEVELOPMENT

Bluetooth

Confidential & Proprietary



BlueMod+S5LR Overview (Preliminary)

Bluetooth 5 Low Energy LR | 802.15.4

Key Benefits:

- ❑ Bluetooth v5 qualified module
- ❑ Profiles*
- ❖ **Generic GATT Client and Server :SOC SDK**
- ❖ **IoT Platform Peripheral with LUA Scripting for host-less applications**
- ❖ **Concurrent Central and Peripheral operations**
 - ✓ Terminal I/O with ATT Extended Packet for fast and easy transparent data transfer , Up to 750kbps*
 - ✓ Automatic "external clock" detection (32KHz)
 - ✓ Configurable DIS (Device Information Service)
 - ✓ LE Secure Connections (LESC)
 - ✓ LE Privacy
 - ✓ LE Long range (125Kb/s PHY) **
 - ✓ 2 Mb/s PHY for LE
 - ✓ Slot Availability Mask
 - ✓ Broadcasting channel improvements
 - ✓ Over-the-Air Updates
 - ✓ Terminal IO Utility
 - ✓ Sample code for iOS and Android

Applications:

- Industrial Applications
- Connected Home

Availability: Q3 2019

Preliminary Specifications

Module Type	Hosted IoT Module , Standalone (Hostless) IoT Module	Bluetooth qualification	V5
Form Factor	17 x 10 x 2.6 mm	Range (Line of Sight)	Up to 1500 m**
Pins	48 LGA pads	RF Power (programmable) Sensitivity	Up to + 5 dBm -105dBm **
Operating Voltage	1.8 – 3.6 V	Power consumption transmission	9.3 mA@5dBm
Antenna	Integrated Ceramic antenna (Antenna peak Gain: +3dBi) External	Standby,(Advertising on 3 channels,1,28s)	13µA
Temperature (operating)	-40°C to +85°C	Power consumption deep sleep (Wake up on reset)	1.0 µA 0.2µA
Peripherals * (vs profile)	UART, I2C, SPI, PWM, ADC GPIO: up to 21	UART SPI	9.6-921 kbps
OTA	Yes	Evaluation Kits	BlueEva+S5LR/AI
Approvals	RED, FCC, IC (More on demand)	Developers Kits	BlueDev+S5LR/AI

BE892G3-SI Overview (Preliminary)

Bluetooth 5 Low Energy LR

Key Benefits:

- ❑ Bluetooth v5 qualified module
- ❑ Profiles*
- ❖ **Generic GATT Client and Server :SOC SDK**
- ❖ **GATT Server**
- ✓ Terminal I/O with ATT Extended Packet for fast and easy transparent data transfer*
- ✓ Automatic "external clock" detection (32KHz)
- ✓ Configurable DIS (Device Information Service)
- ✓ LE Secure Connections (LESC) / LE Privacy
- ✓ LE Long range (125Kb/s PHY) **
- ✓ 2 Mb/s PHY for LE
- ✓ Slot Availability Mask
- ✓ Broadcasting channel improvements
- ✓ Over-the-Air Updates
- ✓ Terminal IO Utility
- ✓ Sample code for iOS and Android
- ❖ **BLE Mesh**

Applications:

- Medical & Health & Wearables
- Connected Home

Availability: Q3 2019

Preliminary Specifications

Module Type	Hosted IoT Module , Standalone (Hostless) IoT Module	Bluetooth qualification	V5
Form Factor	8.0 x 10.0 x 1.6 mm	Range (Line of Sight)	Up to 1500 m**
Pins	48 LGA pads	RF Power (programmable) Sensitivity	Up to + 5 dBm -105dBm **
Operating Voltage	1.8 – 3.6 V	Power consumption transmission	9.3 mA@5dBm
Antenna	Integrated Ceramic antenna (1.8dBi), External (on demand)	Standby,(Advertising on 3 channels,1,28s)	13µA
Temperature (operating)	-40°C to +85°C	Power consumption deep sleep (Wake up on reset)	1.0 µA 0.2µA
Peripherals * (vs profile)	UART, I2C, SPI, PWM, ADC GPIO: up to 21	UART	9.6-921 kbps
OTA	Yes	Evaluation Kits	BE892+S5LR/AI EVK
Approvals	RED, FCC, IC	Developers Kits	BE892+S5LR/AI DVK