

Suitable for  
**ETC2.0** testing!!  
(5.78GHz)



# MSG-2192

## DSRC/DSSS Tester

(Optical beacon)



Antenna unit

**DSRC captures simultaneous data transmitted by road side unit.**

**Possible to transmit and receive the downlink and uplink via radio (DSRC) or infrared (DSSS).**

**Possible to transmit/receive car navigation/on board unit compatible to DSRC/DSSS.**

### DSRC functions

- RSU carrier detection
- Standard connection sequence
- Capture of simultaneous data
- WCN reader
- Transfer capture data

\*As to receive capture data, it is necessary to disable the authentication of SPF at car navigation side.

### Functions of optical beacon (Compatible to DSSS)

This is a sequence function intended to transmit vehicle ID and automatically generated ID flag received through uplink from onboard device.

\*Factory option for both ordinary optical beacon of 64kbps and new beacon of 256kbps is available.

## General

MSG-2192 is a signal generator which generates DSRC and pseudo signal of road side optical beacon unit. DSRC transmits and receives radio, optical beacon through downlink and uplink. It enables to conduct transmitting and receiving test of such as car navigation system and on board unit.

## Features

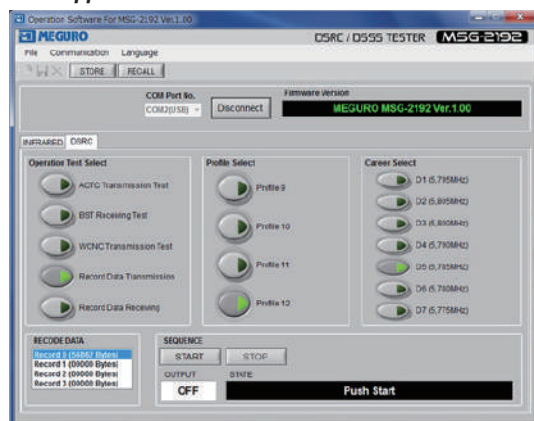
- Transmitting data of DSRC and optical beacon can be written through dedicated application software.
- There is no display or setting switches on the body. Use USB or RS-232 instead.
- With the dedicated application software, setting, DSRC and optical beacon input are easily carried by a PC.

\*No simultaneous output of both DSRC and optical beacon.

\*No editing or creation of DSRC and optical beacon data by the dedicated application.

## Application operation screen

DSRC application screen



Optical beacon (DSSC) screen



## Basic specifications

### DSRC transmission characteristics

Transmitting frequency	5.775GHz, 5.780GHz, 5.785GHz, 5.790GHz, 5.795GHz, 5.800GHz, 5.805GHz
Frequency accuracy	±5×10 <sup>-6</sup> or better
Transmitting power	0.125mW +20%, -50% (At the output terminal of the unit)
Spurious	Spurious area : less than 2.5uW Out of band area : less than 25uW Frequency of boundary : Carrier waveform ±12.2MHz
Allowable occupation frequency band	4.4MHz or better
Adjacent channel leakage power	5MHz±2.2MHz less than -30db 10MHz±2.2MHz less than -40db * ASK: Peak power, QPSK: Average power within burst, QPSK: Average power within burst.
Leakage power at carrier-off	less than 2.5uW
Signal transmitting speed	ASK 1024kbps QPKS 4096kbps
Accuracy	±100×10 <sup>-6</sup> or better
Modulation factor (Applied to ASK)	0.75 or higher
Modulation accuracy (Applied to QPSK)	Better than 10.0%

### Receiver characteristics

Receiving frequency	5.815GHz, 5.820GHz, 5.825GHz, 5.830GHz, 5.835GHz, 5.840GHz, 5.845GHz
Receiving sensitivity	ASK Higher than -50.0dBm e.i.r.p. (Typ) QPSK Higher than -50.0dBm e.i.r.p. (Typ) (BER : less than 1×10 <sup>-5</sup> )
Strength of secondary radiated wave	less than 2.5uW
Max. allowed input	ASK less than -39.6dBm e.i.r.p. (Typ) QPSK less than -30.0dBm e.i.r.p. (Typ) (BER : less than 1×10 <sup>-5</sup> )

### Notes for MSG-2192

1. Optical beacon and DSRC are inspected without considering of onboard application.  
Normal inspection cannot be carried when in onboard condition (condition windshield between) hence considered this is out of warranty. In addition, DSRC inspection is not conforming to SPF authentication therefore data receiving cannot be made. DSRC inspection enabled standard connection sequence and WCNC reading inspection.
2. Radio act  
As this product is not conforming to Radio act in Japan, take appropriate action, such as using electric wave anechoic chamber to prevent leakage of radiation.

Specifications are subject to change without notice for product improvement.

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### Transmission characteristics

Modulation method	ASK modulation, π/4 shift QPSK modulation
Transmission profile	Adopted to profile 9 to 12
Transmission method	Half duplex
Transmission	Point to point (transmit with one onboard unit)
SAM	None
Number of record	4 records Record 0 : Fixed data for test Record 1-3 : Writable data

### Optical beacon (compatible to DSSS)

Modulation method	Pulse amplitude modulation
Coding type	Manchester code
Transmitting speed	Downlink 1024kbps Uplink 64kbps
Number of record	8 records Record 0 : Fixed data for test Record 1-7 : Writable data

### Interface

USB	Standard B receptacle(USB2.0 high speed)
RS-232C	D-Sub 9 Pin (38400bps, Hardware flow)

### Others

Power requirement	DC12V (AC adapter supplied)
Power consumption	Approx. 4W
Dimensions (excluding projected parts)	W210 × H45 × D110mm
Weight	Approx. 500g
Operating temperature range	0 - +40C
Performance guaranteed temperature range	+10 - +35C
Battery backup function	Hold settings and saved data
OS	Windows XP/7
DSRC/DSSS transceiver antenna attached	