Anritsu

Stabilized Light Source

MG9001A, MG9002A

0.85/1.3/1.55 µm

- Plug-in light source units
- Easy combined multi-core fiber cable loss measurement

The MG9001A/MG9002A can be used as stabilized light sources for different applications by changing the light source units. In particular, they have been designed for a high output stability of 0.02 dB. The MG9001A can hold two LED light source units. The MG9002A can hold twelve LED light source units making it ideal for measurement of loss in multi-core fiber cables. Analog and digital modulation functions are also provided in both models which means that they can be used as E/O converters.

Features

•Plug-in unit light sources
Units can be changed according to the application to configure very economical measurement arrangements.

•Integrated optical power meter
The MG9001A can be connected to the ML9001A Optical Power Meter to configure a high-performance optical loss test set.

•Integrated loss measurement in multi-core fiber cables
Connecting the MG9002A and the ML9001A permits simultaneous loss measurement of twelve cores in multi-core fiber cable.

•Various modulation functions
Analog (max. 1 GHz) and digital (max. 30 MHz) modulation functions enable use of these models as LAN-system measuring instruments and as E/O converters for measuring baseband characteristics. Note that to apply external digital modulation and internal modulation separately to the MG9002A, the MG0902A Modulation Unit must be used.

•Variable optical output level
The optical output level can be varied in 0.01 dB steps up to 6 dB.

•DC power operation
The MZ5006A DC-AC Inverter can be used to operate these models on 12 Vdc power.

•Wide operating temperature range (–10º to 50ºC)

•GP-IB

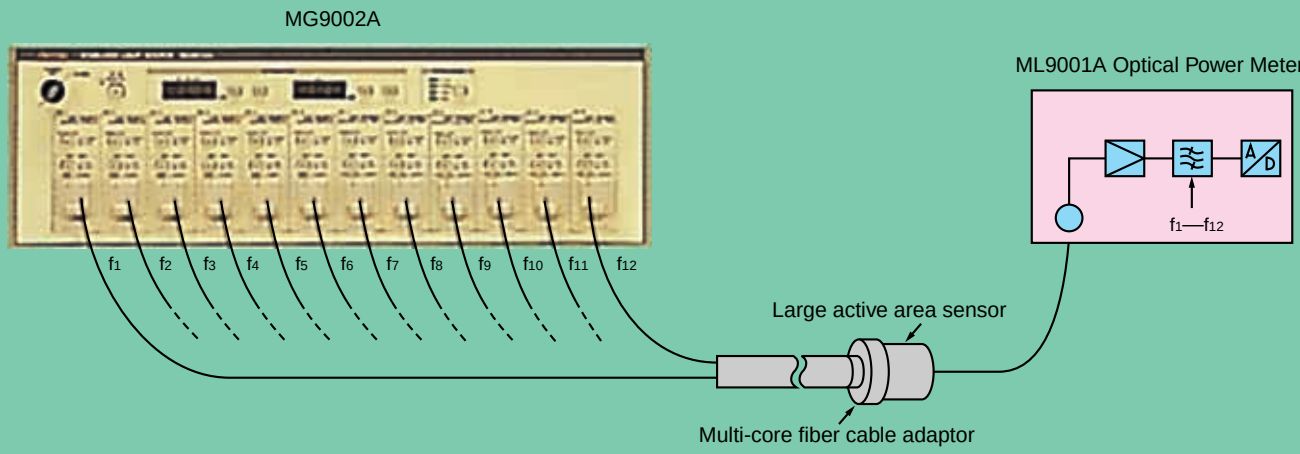
A variety of light source units can be configured for different applications

LED Light Source Units

Fiber	Model	Wavelength	Output power	Number of channels	Features/Applications	
GI	MG0914E	0.85 µm	– 13 ± 1 dBm	1	GI fiber loss measurement	
GI/SM	MG0917A	1.3 µm	– 20 ± 1 dBm (GI) ≥ – 40 dBm (SM)	1	GI/SM fiber loss measurement	
	MG0917B	1.31 µm	≥ – 35 dBm (GI) ≥ – 50 dBm (SM)	1	Narrow spectrum (≤25 nm)	GI/SM fiber high-precision loss measurement
	MG0918B	1.55 µm	≥ – 35 dBm (GI) ≥ – 50 dBm (SM)	1		
	MG0917D	1.31 µm	≥ – 35 dBm (GI) ≥ – 50 dBm (SM)	2	Narrow spectrum (≤25 nm)	Low-loss measurement of optical fibers, optical devices, optical connectors, etc.
	MG0918D	1.55 µm	≥ – 35 dBm (GI) ≥ – 50 dBm (SM)	2	Ecellent temperature stability	
SM	MG0927J	1.31 µm	≥ – 28 dBm	2	Two optical outputs in one unit	Edge-emitting LED use SM fiber high-precision loss measurement
	MG0928J	1.55 µm	≥ – 32 dBm	2		
	MG0927D	1.31 µm	≥ – 28 dBm	2	One optical output in one unit	High-loss measurement of optical fibers, optical devices
	MG0928D	1.55 µm	≥ – 32 dBm	2		

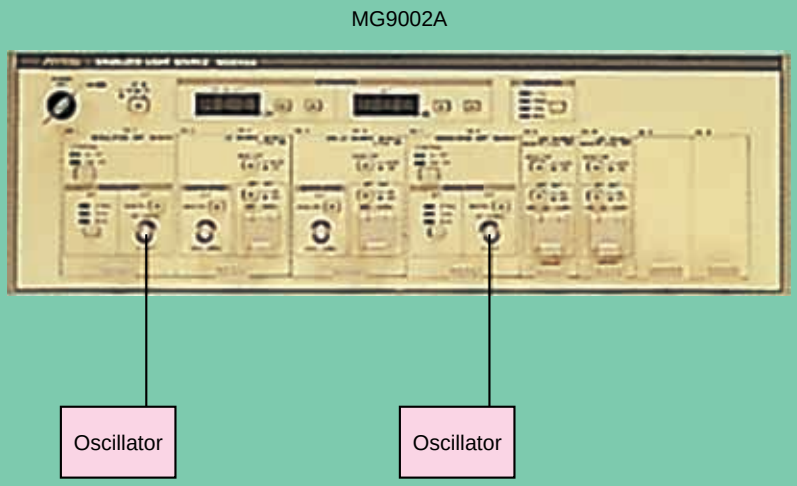
Applications

Easy combined multi-core fiber cable loss measurement



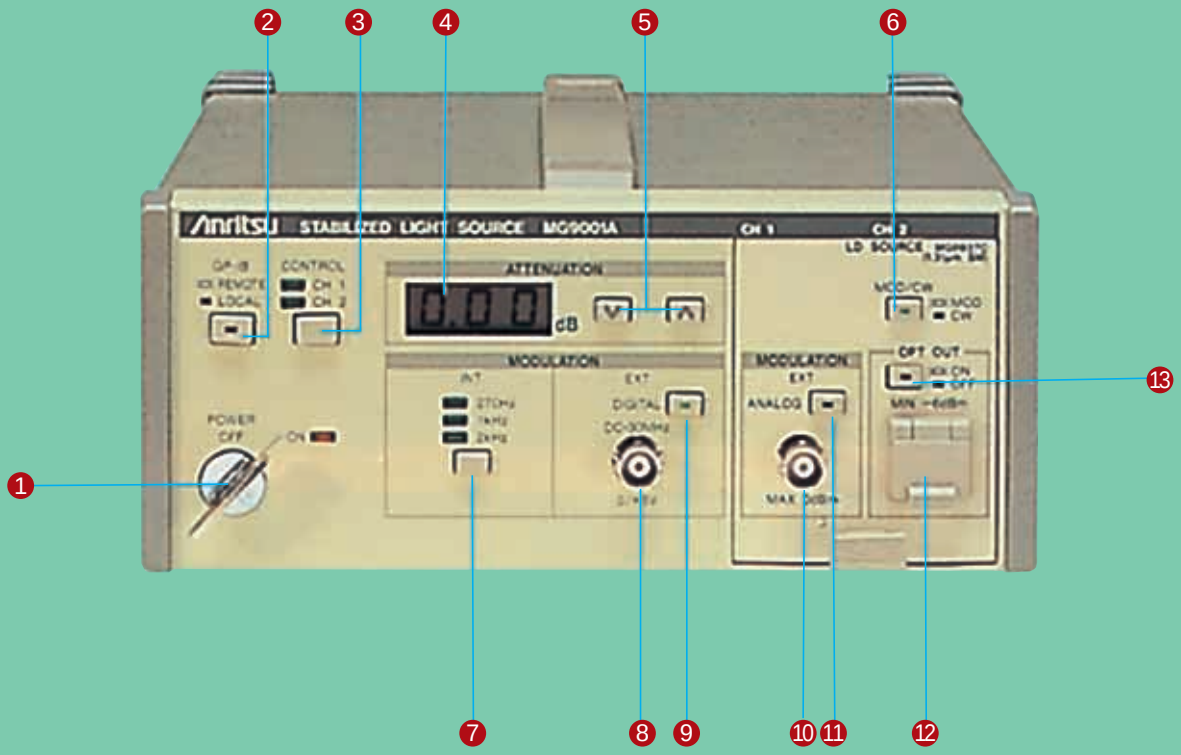
Connecting the MG9002A to the ML9001A makes loss measurement in multi-core fiber cable easy with a single connection.

MG0902A Modulation Unit operation



The MG0902A is used to apply modulation to up to two light source unit optical outputs placed adjacent to this unit to the right.

MG9001A



1 POWER switch

2 LOCAL key
Clears REMOTE status

3 CONTROL key
Selects channel for setting

4 Optical attenuation display

5 Optical attenuation setting keys

6 MOD/CW key
Switches modulation mode and continuous wave mode

7 Internal modulation frequency key
Selects internal modulation in sequence 270 Hz, 1 kHz and 2 kHz

8 Digital input

9 EXT DIGITAL key
Selects external digital modulation

10 Analog input

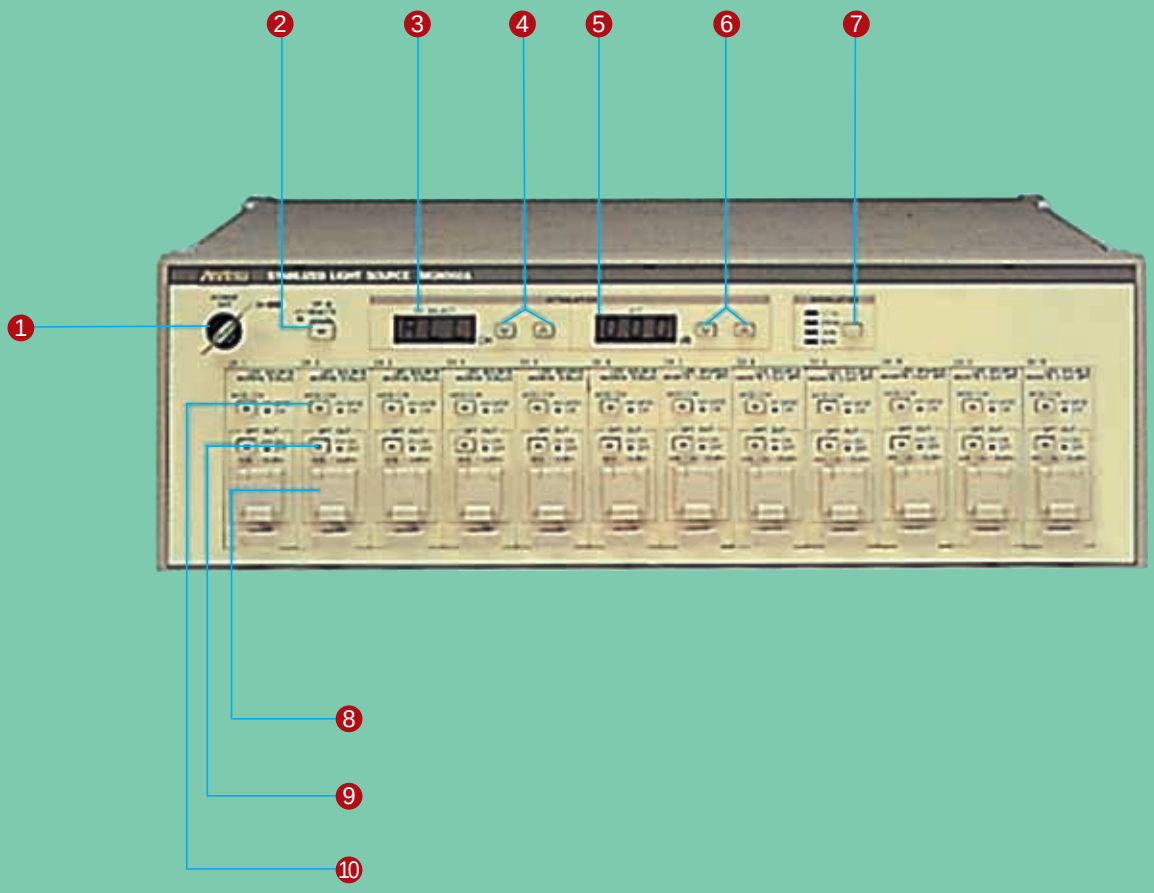
11 EXT ANALOG key
Selects external analog modulation

12 Optical output

13 Optical output ON/OFF key

∗ LD Units (photograph) had been discontinued.

MG9002A



1 POWER switch

2 LOCAL key
Clears REMOTE status

3 Optical attenuation setting channel display

4 Optical attenuation setting channel selection keys

5 Set channel optical attenuation display

6 Optical attenuation setting keys

7 Internal modulation frequency key

8 Optical output

9 Optical output ON/OFF key

10 MOD/CW key
Switches modulation mode and continuous wave mode

Specifications

Main Frames

Model	MG9001A	MG9002A
Number of units that can be installed	LED Light Source: 1 to 2 pcs	LED Light Source: 1 to 12 pcs
Attenuation display	0 to 6 dB, 0.01 dB steps	
Internal modulation	Frequencies: (270 Hz, 1 kHz, 2 kHz) ±0.1%	Simultaneous modulation frequencies: (270 Hz, 1 kHz, 2 kHz) ± 0.1% Individual modulation frequencies for each channel: twelve range 170 to 1000 Hz
	Duty factor: 50 ±10% Output synchronized with modulation signal: TTL level (terminated at 10kΩ), BNC	
External modulation	Frequency: DC to 30 MHz Input level: 0 to 0.8/2 to 5 V Impedance: 75 Ω, BNC connector	See MG0902A Modulation Unit specification
GP-IB	SH1, AH1, T8, L4, SR0, RL1, PP0, DC1, DT0, C0	
Temperature range	–10° to +50°C (spec. meet), –40° to +70°C (storage)	
Power	**Vac $^{+10}_{-15}$ %, 50/60/400 Hz, ≤49 VA (full units)	**Vac $^{+10}_{-15}$ %, 50/60 Hz, ≤200 VA (full units)
Dimensions and weight	88H x 213W x 250D mm, <4 kg (without unit)	133H x 426W x 350D mm, <12 kg (without unit)

**Specify one nominal line voltage between 100 V and 250 V when ordering.

LED Light source Units

Model		MG0914E	MG0917A	MG0917B	MG0918B	MG0917D	MG0918D	MG0927D/J*8	MG0928D/J*8
Compatible fiber		GI	GI/SM					SM	
Wavelength (μm)		0.85 ±0.015*1	1.3 ±0.03*1	1.31 ±0.01	1.55 ±0.01	1.31 ±0.01	1.55 ±0.01	1.31 ±0.01	1.55 ±0.01
Spectral bandwidth		≤50 nm*1	≤130 nm*1	≤20 nm	≤25 nm	≤20 nm	≤25 nm	≤20 mm	≤25 nm
Output level*2	GI fiber	– 13 ±1 dBm	– 20 ±1 dBm	≥ –35 dBm (typ. –31 dBm)				—	
	SM fiber	—	≥ –40 dBm (typ. –38 dBm)	≥ –50 dBm (typ. –48 dBm)				≥ –28 dBm (typ. –26 dBm)	≥ –32 dBm (typ. –30 dBm)
Output level stability*9	Temperature characteristics	≤ 0.2 dB*4				≤ 0.1 dB*3 ≤ 0.2 dB*7		≤ 0.2 dB*7 (FC-PC) ≤ 0.5 dB*7 (FC)	
	Short term stability	< 0.02 dB*5						≤ 0.02 dB*5 (FC-PC) ≤ 0.05 dB*5 (FC)	
Modulation	Interal digital modulation	Frequency: (270 Hz, 1 kHz, 2kHz) ± 0.1%, individual modulation frequencies for each channel Duty factor: 50 ± 10%							
	External digital modulation	Input: rise/fall time ≤3 ns (10 to 90%), level 0 to 0.8/2 to 5 V, connector BNC, impedance 75 Ω, frequency DC to 10 MHz Output: rise/fall time ≤30 ns						Input: rise/fall time ≤3 ns (10 to 90%), level 0 to 0.8/2 to 5 V, connector BNC, impedance 75 Ω, Frequency DC to 30 MHz Output: rise/fall time ≤10 ns	
Attenuation setting range		0 to 6 dB, 0.01 dB steps							
Connector*6		FC-type (standard model)						FC-PC type (standard model)	
Temperature range		–10° to +50°C (spec. meet), –40° to +70°C (storage)							
Dimensions and weight		74H x 31W x 178D mm, <400 g				74H x 62W x 178D mm <500 g		74H x 62W x 178D mm <500 g (MG0927D/0928D) <600 g (MG0927J/0928J)	

*1 25°C, attenuator 0 dB
*2 CW, attenuator 0 dB
*3 CW, 10° to 40°C, 8 hours
*4 CW, attenuator 0 dB, –10° to +50°C, 8 hours
*5 CW, ±1°C change at a temperature between –10°C and +50°C, for one hour
*6 D4, DIN, DIAMOND and ST connectors are available as options
For other connectors, please consult your neatest Anritsu representative
*7 CW, –10° to +50°C, 8 hours
*8 MG0927J and MG0928J are single units with two optical outputs
*9 15 minutes after optical output ON

Note: Above specifications are expressed for the case when 2 m of GI fiber (50/125 μm, NA 0.2) or SM fiber (10/125 μm, NA 0.1) is connected.

Modulation Unit

Model	MG0902A
Modulation	Frequency: DC to 30 MHz Input: 0 to 0.8/2 to 5 V, 75 Ω, BNC
Temperature range	–10° to +50°C (spec. meet), –40° to +70°C (storage)
Dimensions and weight	74H × 62W × 178D mm, <400 g

Laser product safety protection

The MG9001A/9002A's LD light source units are laser products and safety protection conforming to optical safety standards IEC Pub. 825 and 21CFR 1040.10 (USA) are incorporated.

Class-2A or greater power laser products

Model number	Wave-length	IEC Pub. 825		21CFR 1040.10	
		Max. output	Class	Max. output	Class
MG0934E	0.85 µm	2 mW	3A	2 mW	3B

LD light source units which are not given here are Class–1 equipment.

Explanation and warning label example

Explanation label (IEC)

Warning lavel (CFR)

Maximum power output and wavelength are given for *1 and *2 respectively.

Ordering Information

Model/Order No.	Name		Remarks
	—Main frames—		
MG9001A	Stabilized Light Source		
MG9002A	Stabilized Light Source		
	—Standard accessories (MG9001A)—		
	Power cord. 2.5 m:	1 pc	
F0009	Fuses, 1.25 A:	2 pcs	T1.25A250V
F0039	Fuse, 0.2 A:	1 pc	MF51NN250V0.2ADC01
F0040	Fuses, 0.315 A:	3 pcs	MF51NN250V0.315ADC01
F0043	Fuse, 1 A:	1 pc	MF51NN250V1ADC01
F0044	Fuses, 1.6 A:	2 pcs	MF51NN250V1.6ADC01
E0007	Optical output control key:	2 pcs	2 K-01J
W0487AE	MG9001A/9002A operation manual:	1 copy	
	—Standard accessories (MG9002A)—		
	Power cord. 2.5 m:	1 pc	
F0013	Fuses, 5 A:	2 pcs	T5A250V
F0040	Fuses, 0.315 A:	2 pcs	MF51NN250V0.315ADC01
F0043	Fuses, 1 A:	2 pcs	MF51NN250V1ADC01
F0045	Fuse, 2 A:	1 pc	MF51NN250V2ADC01
F0046	Fuses, 3.15 A:	6 pcs	MF51NN250V3.15ADC01
E0007	Optical output control key:	2 pcs	2 K-01J
W0487AW	MG9001A/9002A operation manual:	1 copy	
	—Plug-in units—		
MG0914E	LED Source		
MG0917A	LED Source		0.85 μm, GI
MG0917B	LED Source		1.3 μm, GI/SM
MG0918B	LED Source		1.31 μm, GI/SM
MG0917D	LED Source		1.55 μm, GI/SM
MG0918D	LED Source		1.31 μm, GI/SM
MG0927D	Edge-Emitting LED Source		1.55 μm, GI/SM
MG0928D	Edge-Emitting LED Source		1.31 μm, SM
MG0927J	Edge-Emitting LED Source		1.55 μm, SM
MG0928J	Edge-Emitting LED Source		1.31 μm, SM
MG0902A	Modulation Unit		1.55 μm, SM
	—Options—		
MG900□-02	Top cover for stacking		
	—Application accessories—		
MZ5006A	DC-AC Inverter		
J0200B	FC Optical fiber cord, 2 m		
J0439B	FC Optical fiber cord, 2 m		FC-FC-2M-GI
J0056B	FC Optical fiber cord, 2 m		FC·PC-FC·PC-2M-GI
J0635B	FC Optical fiber cord, 2 m		FC-FC-2M-SM
B0283	Blank panel		FC·PC-FC·PC-2M-SM

Specifications are subject to change without notice.

ANRITSU CORPORATION
MEASUREMENT SOLUTIONS
5-10-27, Minamiazabu, Minato-ku, Tokyo 106-8570, Japan
Phone: +81-3-3446-1111
Telex: J34372
Fax: +81-3-3442-0235

Overseas Subsidiaries

● **U.S.A.**
ANRITSU COMPANY
North American Region Headquarters
1155 East Collins Blvd., Richardson, Tx 75081, U.S.A.
Toll Free: 1-800-ANRITSU (267-4878)
Phone: +1-972-644-1777
Fax: +1-972-671-1877

● **Canada**
ANRITSU ELECTRONICS LTD.
Unit 102, 215 Stafford Road West
Nepean, Ontario K2H 9C1, Canada
Phone: +1-613-828-4090
Fax: +1-613-828-5400

● **Brasil**
ANRITSU ELETRÔNICA LTDA.
Praia de Botafogo 440, Sala 2401 CEP 22250-040,
Rio de Janeiro, RJ, Brasil
Phone: +55-21-5276922
Fax: +55-21-537-1456

● **U.K.**
ANRITSU LTD.
200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

● **Germany**
ANRITSU GmbH
Grafenberger Allee 54-56, 40237 Düsseldorf, Germany
Phone: +49-211-96855-0
Fax: +49-211-96855-55

● **France**
ANRITSU S.A.
9, Avenue du Québec Z.A. de Courtabœuf 91951 Les Ulis Cedex, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

● **Italy**
ANRITSU S.p.A.
Via Elio Vittorini, 129, 00144 Roma EUR, Italy
Phone: +39-06-509-9711
Fax: +39-06-502-24-25

● **Sweden**
ANRITSU AB
Botvid Center, Fittja Backe 1-3 145 84 Stockholm, Sweden
Phone: +46-853470700
Fax: +46-853470730

● **Singapore**
ANRITSU PTE LTD.
6, New Industrial Rd., #06-01/02, Hoe Huat Industrial Building, Singapore 536199
Phone: +65-282-2400
Fax: +65-282-2533

● **Hong Kong**
ANRITSU COMPANY LTD.
Suite 719, 7/F., Chinachem Golden Plaza, 77 Mody Road, Tsimshatsui East, Kowloon, Hong Kong, China
Phone: +852-2301-4980
Fax: +852-2301-3545

● **Korea**
ANRITSU CORPORATION
14F Hyun Juk Bldg. 832-41, Yeoksam-dong, Kangnam-ku, Seoul, Korea
Phone: +82-2-553-6603
Fax: +82-2-553-6604~5

● **Australia**
ANRITSU PTY LTD.
Unit 3/170 Forster Road Mt. Waverley, Victoria, 3149, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

● **Taiwan**
ANRITSU COMPANY INC.
6F, 96, Sec. 3, Chien Kou North Rd. Taipei, Taiwan
Phone: +886-2-2515-6050
Fax: +886-2-2509-5519

● **Spain**
ANRITSU ELECTRÓNICA, S.A.
Europa Empresarial Edificio Londres, Planta 1, Oficina 6
C/ Playa de Liencres, 2 28230 Las Rozas. Madrid, Spain
Phone: +34-91-6404460
Fax: +34-91-6404461

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