



# SPECIFICATION

## Ku-Band Transceiver 5900 series

### TRANSMIT SECTION

#### IF input

|                    |                                     |
|--------------------|-------------------------------------|
| Frequency Range    | 70 ± 20 MHz/140 ± 20 MHz selectable |
| – narrow BW option |                                     |
| – wide BW option   | 140 ± 40 MHz                        |
| Impedance          | 50/75 ohms selectable               |
| Connector          | N-type female                       |
| Return loss        | 18 dB minimum                       |

#### Gain specification

|                      |                                 |
|----------------------|---------------------------------|
| Gain                 |                                 |
| – 2 W                | 61 dB nominal                   |
| – 4 W                | 64 dB nominal                   |
| – 8 W                | 67 dB nominal                   |
| – 16 W               | 70 dB nominal                   |
| Attenuator range     | 0 dB to 25 dB nominal           |
| Attenuator step size | 1 dB nominal                    |
| Gain flatness        |                                 |
| – narrow BW option   | ±1.0 dB/40 MHz, maximum         |
| – wide BW option     | ±2.0 dB/80 MHz, maximum         |
| Gain stability       | ±1.0 dB, maximum –40°C to +55°C |

#### RF output

|                 |                  |
|-----------------|------------------|
| Frequency range | 14.0 to 14.5 GHz |
|-----------------|------------------|

#### 2 W SSPA

|                                  |  |
|----------------------------------|--|
| Output power (1 dB GCP)          | +33 dBm minimum  |
| Connector                        | WR75   |
| VSWR                             | 1.4:1 maximum  |
| Carrier to intermodulation ratio | –29 dBc, two carriers, each at 6 dB OPBO from 1 dB GCP |

#### 4 W SSPA

|                                  |  |
|----------------------------------|--|
| Output power (1 dB GCP)          | +36 dBm minimum  |
| Connector                        | WR75   |
| VSWR                             | 1.4:1 maximum  |
| Carrier to intermodulation ratio | –29 dBc, two carriers, each at 6 dB OPBO from 1 dB GCP |

#### 8 W SSPA

|                                  |   |
|----------------------------------|---|
| Output power (1 dB GCP)          | +39 dBm minimum                                       |
| Connector                        | WR75  |
| VSWR                             | 1.4:1 maximum   |
| Carrier to intermodulation ratio | –27 dBc, two carriers each at 6 dB OPBO from 1 dB GCP |

#### 16 W SSPA

|                                  |   |
|----------------------------------|---|
| Output power (1 dB GCP)          | +42 dBm minimum                                       |
| Connector                        | WR75  |
| VSWR                             | 1.4:1 maximum   |
| Carrier to intermodulation ratio | –27 dBc, two carriers each at 6 dB OPBO from 1 dB GCP |

#### Spurious output

–60 dBc maximum at 1 dB GCP

#### Harmonics

–50 dBc maximum at 6 dB OPBO from 1 dB GCP

#### Phase noise (SSB)

|         |            |
|---------|------------|
| 100 Hz  | –60 dBc/Hz |
| 1 kHz   | –70 dBc/Hz |
| 10 kHz  | –75 dBc/Hz |
| 100 kHz | –85 dBc/Hz |

#### Synthesiser step size

1 MHz

#### Frequency stability

|                |                             |
|----------------|-----------------------------|
| –40°C to +55°C | ±2 × 10 <sup>–8</sup>       |
| Aging          | ±1 × 10 <sup>–7</sup> /year |

#### Cable compensation

|                    |                                   |
|--------------------|-----------------------------------|
| Range              |                                   |
| – narrow BW option | 0 dB to +1.2 dB nominal, 16 steps |
| – wide BW option   | 0 dB to +2.5 dB nominal, 16 steps |

### RECEIVE SECTION (Excluding LNB)

#### RF input

|                                   |                      |
|-----------------------------------|----------------------|
| Frequency Range                   | 950 to 1700 MHz      |
| Impedance                         | 50 ohms              |
| Connector                         | N-type female        |
| VSWR                              | 1.4:1 maximum        |
| Noise figure                      | 18 dB typical        |
| DC Output (switch selectable)     | +15 V @ 75 to 400 mA |
| 10 MHz Output (switch selectable) | 0 dBm ± 1 dB         |

#### IF output

|                     |                                     |
|---------------------|-------------------------------------|
| Frequency Range     |                                     |
| – narrow BW option  | 70 ± 20 MHz/140 ± 20 MHz selectable |
| – wide BW option    | 140 ± 40 MHz                        |
| Impedance           | 50/75 ohms selectable               |
| 3rd order intercept | +15 dBm minimum                     |
| Connector           | N-type female                       |
| Return loss         | 18 dB minimum                       |

#### Gain specification

|                      |                                |
|----------------------|--------------------------------|
| Gain                 | 35 dB nominal                  |
| Attenuator range     | 0 dB to 25 dB nominal          |
| Attenuator step size | 1 dB nominal                   |
| Gain flatness        |                                |
| – narrow BW option   | ±1.0 dB/40 MHz, maximum        |
| – wide BW option     | ±2.0 dB/80 MHz, maximum        |
| Gain stability       | ±2.0 dB maximum –40°C to +55°C |

#### Image rejection

50 dB minimum

#### Spurious output

–65 dBm maximum

#### Phase noise (SSB)

|         |            |
|---------|------------|
| 100 Hz  | –60 dBc/Hz |
| 1 kHz   | –70 dBc/Hz |
| 10 kHz  | –75 dBc/Hz |
| 100 kHz | –85 dBc/Hz |

#### Synthesiser step size

1 MHz

### Frequency stability

|                |                              |
|----------------|------------------------------|
| -40°C to +55°C | $\pm 2 \times 10^{-8}$       |
| Aging          | $\pm 1 \times 10^{-7}$ /year |

### LOW NOISE BLOCK CONVERTER

These specifications are indicative. LNBs to cover other frequency bands or with lower noise temperatures are also available.

#### Input

|                 |   |
|-----------------|---|
| Frequency range | Band 1 10950 to 11700 MHz<br>Band 2 11700 to 12200 MHz<br>Band 3 12250 to 12750 MHz |
| Interface       | WR75  |
| VSWR            | 2.5:1 typical   |

#### Noise figure

1.2 dB maximum at 25°C  
1.0 dB typical  
(other noise figures available)

#### Gain specification

|               |                                |
|---------------|--------------------------------|
| Gain          | 60 dB minimum                  |
| Gain flatness | $\pm 1.5$ dB maximum full band |

#### Output

|                     |                 |
|---------------------|-----------------|
| 1 dB GCP            | +0 dBm minimum  |
| 3rd order intercept | +11 dBm minimum |
| Impedance           | 50 ohms         |
| Connector           | N-type female   |
| VSWR                | 1.5:1 typical   |

### TRANSMIT REJECT FILTER

These specifications are indicative. Transmit Reject Filters to cover other frequency bands are also available.

**Pass band** 10950 to 12750 MHz

**Insertion loss** 0.05 dB maximum

**Reject band** 14.0 to 14.5 GHz

**Rejection** 55 dB minimum

### GENERAL

**Input voltage** 37 to 72 V DC (floating input) standard. 115/230 V, -15%/+20% AC with power supply unit

#### Power consumption

|    |      |  |
|----|------|--|
| DC | 2 W  | 95 W maximum SSPA On                           |
|    | 4 W  | 160 W maximum SSPA On                          |
|    | 8 W  | 200 W maximum SSPA On                          |
|    | 16 W | 220 W maximum SSPA On<br>40 W maximum SSPA Off |
| AC | 2 W  | 150 VA typ. @ nom. AC voltage SSPA On          |
|    | 4 W  | 240 VA typ. @ nom. AC voltage SSPA On          |
|    | 8 W  | 310 VA typ. @ nom. AC voltage SSPA On          |
|    | 16 W | 340 VA typ. @ nom. AC voltage SSPA On          |

#### Monitor and control facilities

**Indicators:** Standby, On, Warm-up, SSPA activated, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault

**Controls:** Power control (off/standby/on), SSPA control (inhibit/remote/activate), Serial interface settings, LNB supply via Rx RF Input connector, Mains/Battery supply select

### Remote monitor and control facilities

**Serial interface standards:** RS232, RS422 (RS485)

**Protocol standards:** ASCII, Packet (RS485); various standards available

**Packet protocol address range:** 0 to 127

**Remote monitoring functions (serial interface):** Standby, On, Warm-up, SSPA activated, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault, SSPA inhibit control, SSPA activate control, Transmit frequency, Receive frequency, Transmit attenuation, Receive attenuation, Cable compensation, Reference oscillator override, SSPA alarm enable, LNB alarm enable, Temperature compensation select, Packet address (ASCII mode only), Packet address range (ASCII mode only), Packet protocol select, SSPA mode select, Converter lock, Status change poll

**Remote control functions (serial interface):** Power control (standby/on), SSPA inhibit control, SSPA activate control, Transmit frequency, Receive frequency, Transmit attenuation, Receive attenuation, Cable compensation, Reference oscillator override, SSPA alarm enable, LNB alarm enable, Temperature compensation select, Address range select (ASCII mode only), Packet protocol select, SSPA mode select, Reset, Reset change bits

**Remote monitoring functions (contact closure):** Standby, Warm-up, SSPA activated, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault

**Remote control functions (contact closure):** Power control (standby/on), SSPA inhibit control, SSPA activate control

### ENVIRONMENTAL

#### Converter module and SSPA module

|                   |   |
|-------------------|---|
| Temperature       | -40°C to +55°C  |
| Relative humidity | 100%  |
| Cooling           | Converter-Convection<br>2 W, 4 W-Convection<br>8 W, 16 W-Forced air |
| Weatherproofing   | Sealed to 34 kPa  |

#### Power Supply Unit

|                   |                |
|-------------------|----------------|
| Temperature       | -40°C to +55°C |
| Relative humidity | 100%           |
| Cooling           | Convection     |
| Weatherproofing   | Sealed to IP55 |

### PHYSICAL

All dimensions are measured over the connectors.

#### Size

|                        |                                |
|------------------------|--------------------------------|
| Converter module       | 110 mm W x 410 mm D x 240 mm H |
| SSPA module, 2 W, 4 W  | 140 mm W x 300 mm D x 145 mm H |
| SSPA module, 8 W, 16 W | 155 mm W x 350 mm D x 185 mm H |
| Power Supply Unit      | 200 mm W x 160 mm D x 370 mm H |

#### Weight

|                        |        |
|------------------------|--------|
| Converter module       | 8 kg   |
| SSPA module, 2 W, 4 W  | 4.5 kg |
| SSPA module, 8 W, 16 W | 5.5 kg |
| Power Supply Unit      |        |
| 5580                   | 7.5 kg |
| 5581                   | 8.5 kg |



Head Office

Codan Pty Ltd  
ACN 007 590 605  
81 Graves Street  
Newton  
South Australia 5074  
Telephone +61 8 8305 0311  
Facsimile +61 8 8305 0410

**Email:**  
satcom@codan.com.au

**Worldwide Web:**  
http://www.codan.com.au

Codan Pty Ltd  
10359 Bear Creek Drive  
Manassas, VA 20111-4376  
USA  
Telephone +1 703 361 2721  
Facsimile +1 703 361 3812

Codan (UK) Ltd  
Gostrey House  
Union Road  
Farnham, Surrey GU9 7PT  
United Kingdom  
Telephone +44 1252 717 272  
Facsimile +44 1252 717 337  
Telex 858355

12-20083 Issue Provisional 1: 4/98