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**ASU2 / Local Oscillator & Tune
User Manual**

Version 001

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This manual was written by

BARTHÉLÉMY Philippe

© March 24, 2000: Bruker SA

Wissembourg, France

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Contents

| | | |
|----------|--|-----------|
| | Contents | 3 |
| | Index | 5 |
| 1 | Description | 7 |
| 1.1 | Front panel wiring | 7 |
| 1.2 | Fonctional diagram | 8 |
| 1.3 | RF Wiring diagram | 9 |
| 1.4 | Interface inputs / outputs connectos | 10 |
| 1.5 | MMA Unit | 12 |
| 2 | Specifications | 13 |
| 2.1 | Characteristics of ASU2, Local Oscillator & Tune | 13 |
| | RF specifications | 13 |
| | Amplitude control | 13 |
| | Safety switch | 13 |
| | Dynamics | 13 |
| | Phase shift | 14 |
| | Isolation (SPENAB CMD), (MOD & MULT at max. level) | 14 |
| | Output noise level | 14 |
| | Switching time | 14 |
| | Local Oscillator & Tune section specifications | 14 |
| | DC requirements | 15 |
| | Operating temperature | 15 |
| | Figures | 17 |
| | Tables | 19 |

Index

D

Dynamic range 13

F

Frequency range 13

I

Isolations 14

S

Supplies 15

Description

1

Front panel wiring

1.1

Figure 1.1. ASU2 / LO&T Front panel location

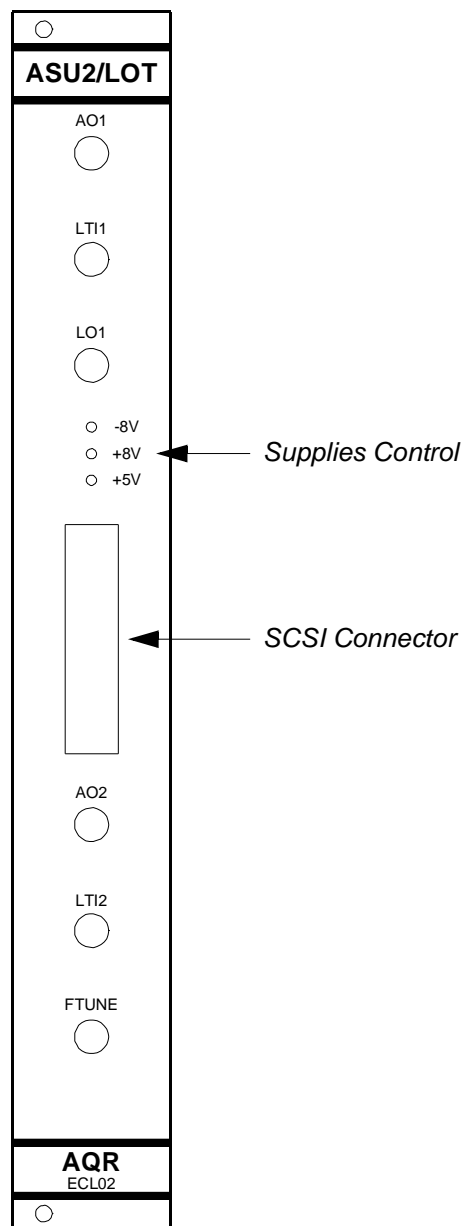


Figure 1.2. ASU2 / LO&T functional block diagram

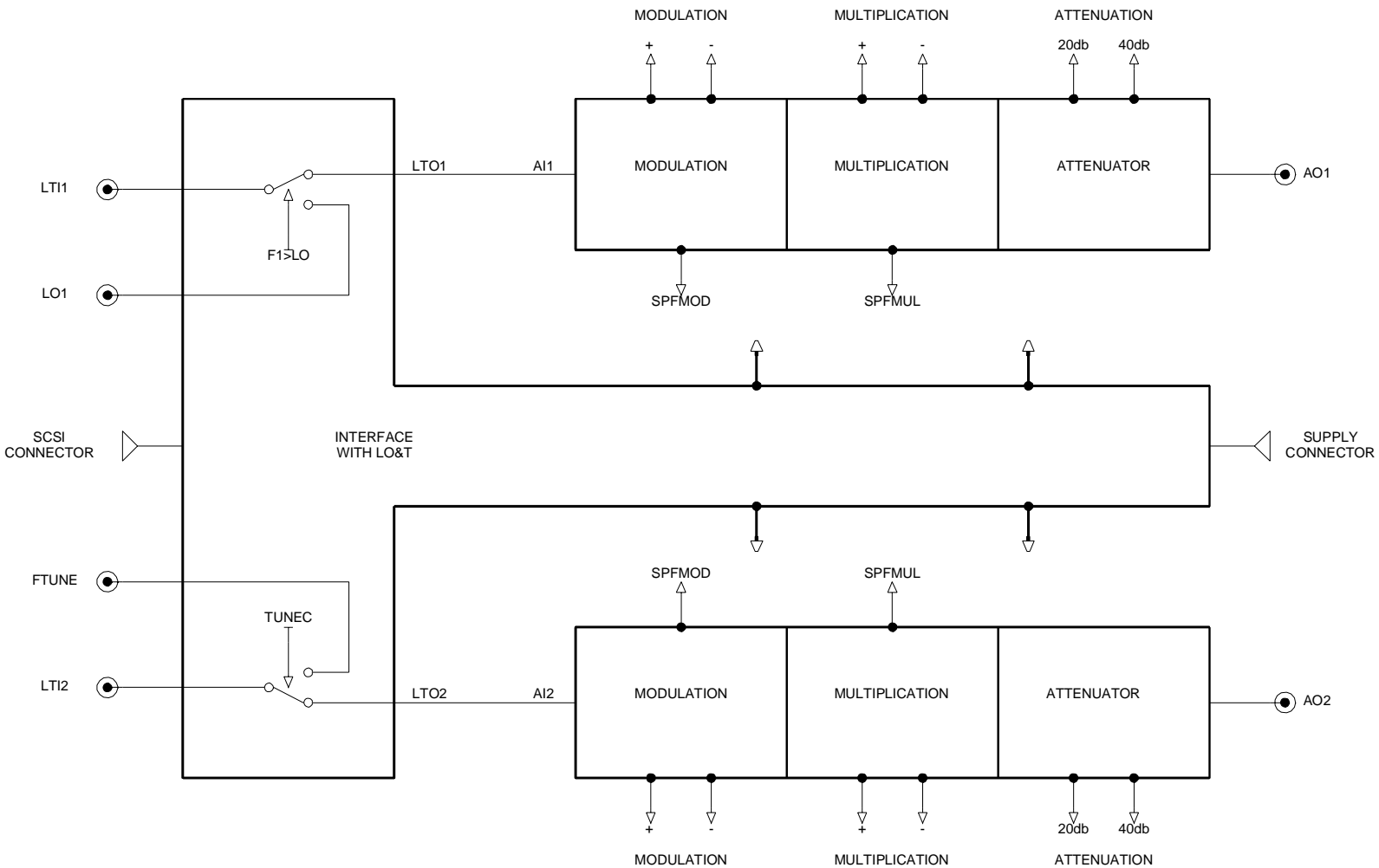


Figure 1.3. ASU2 / LO&T RF Wiring diagram

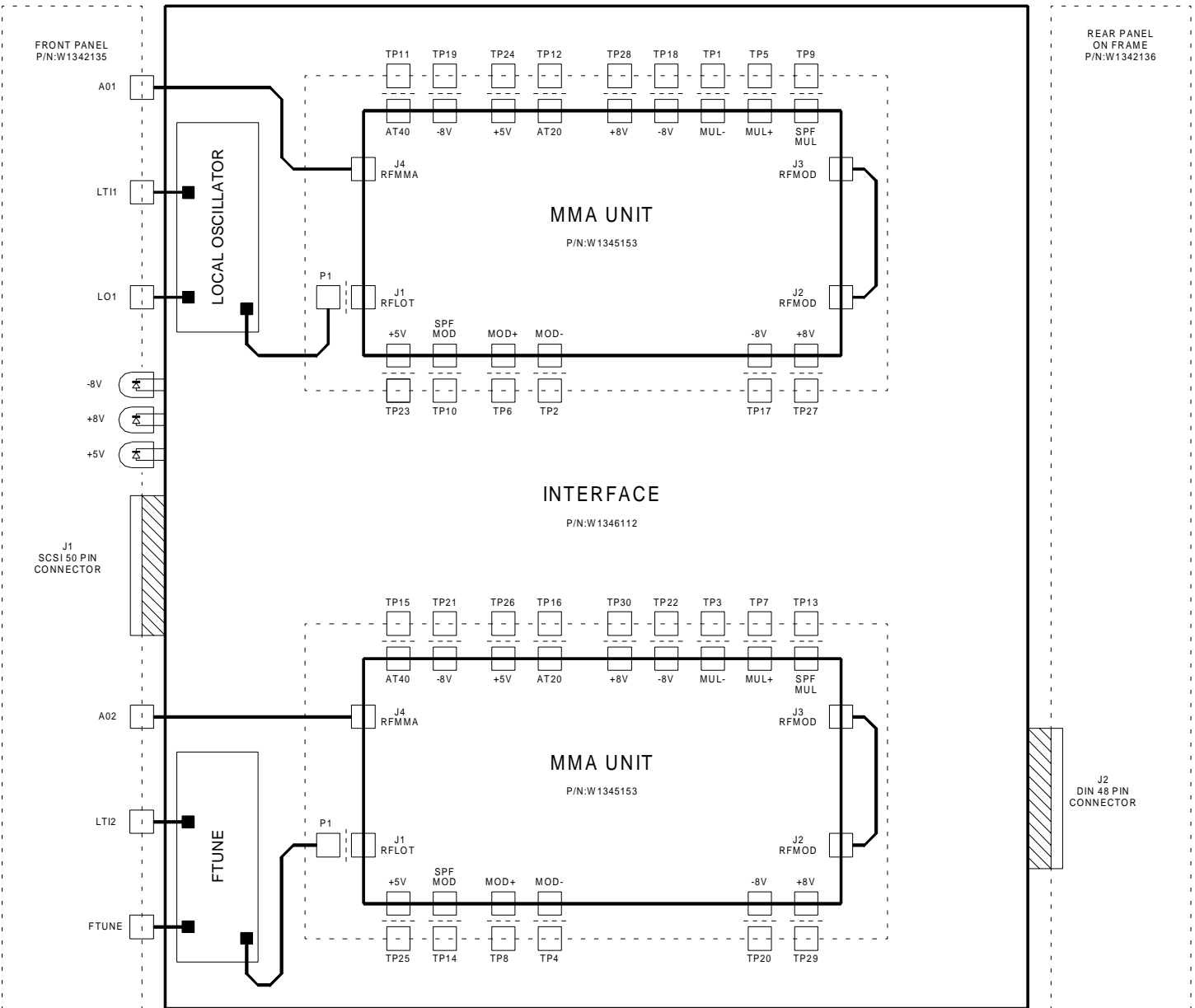


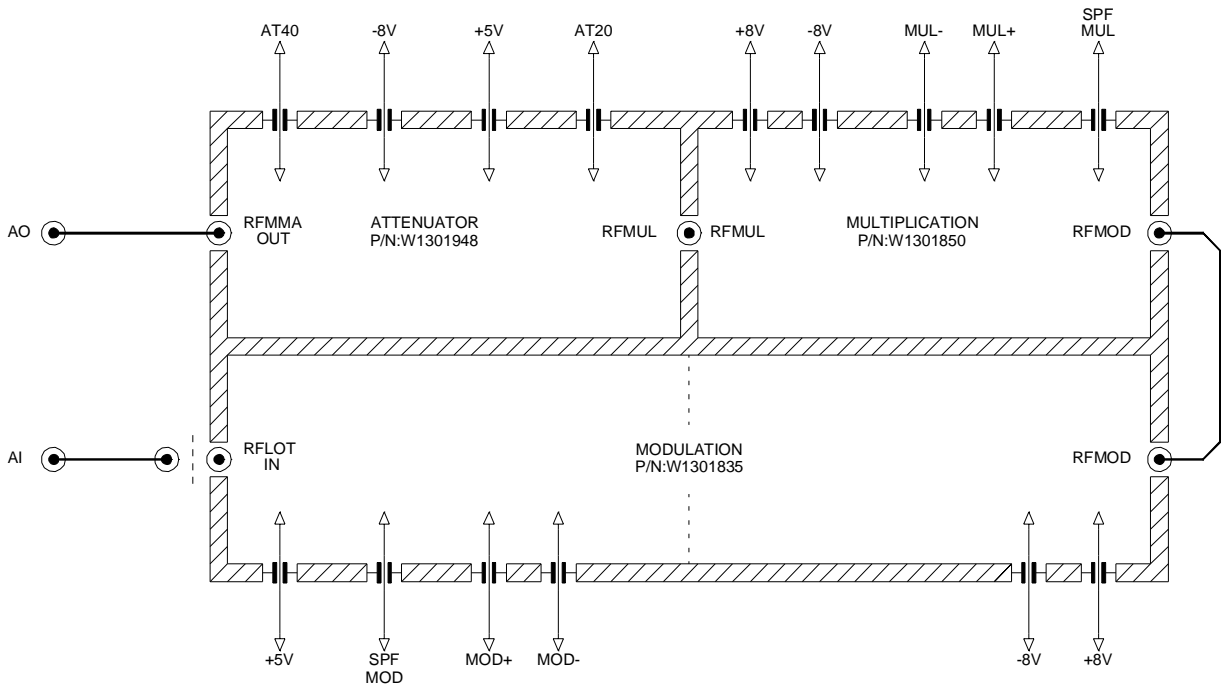
Table 1.1. Front Panel Connector J1

| Pins | Descriptions | Pins | Descriptions |
|------|--------------|------|--------------|
| 01 | NC | 26 | NC |
| 02 | NC | 27 | NC |
| 03 | NC | 28 | NC |
| 04 | AGND | 29 | AGND |
| 05 | MULF1- | 30 | MULF1+ |
| 06 | AGND | 31 | AGND |
| 07 | MODF1- | 32 | MODF1+ |
| 08 | AT20F1 | 33 | DGND |
| 09 | AT40F1 | 34 | DGND |
| 10 | BLKF1 | 35 | DGND |
| 11 | SPFF1 | 36 | DGND |
| 12 | OBSF1 | 37 | DGND |
| 13 | AGND | 38 | AGND |
| 14 | MULF2- | 39 | MULF2+ |
| 15 | AGND | 40 | AGND |
| 16 | MODF2- | 41 | MODF2+ |
| 17 | AT20F2 | 42 | DGND |
| 18 | AT40F2 | 43 | DGND |
| 19 | BLKF2 | 44 | DGND |
| 20 | SPFF2 | 45 | DGND |
| 21 | OBSF2 | 46 | DGND |
| 22 | NC | 47 | DGND |
| 23 | TUNE ON | 48 | DGND |
| 24 | NC | 49 | DGND |
| 25 | NC | 50 | DGND |

Table 1.2. Rear Panel Connector J2

| Pins | Descriptions | Pins | Descriptions | Pins | Descriptions |
|------|--------------|------|--------------|------|--------------|
| 1A | NC | 1B | NC | 1C | NC |
| 2A | NC | 2B | NC | 2C | NC |
| 3A | Adresse 1 | 3B | Adresse 2 | 3C | Adresse 3 |
| 4A | NC | 4B | NC | 4C | NC |
| 5A | NC | 5B | NC | 5C | NC |
| 6A | SDA | 6B | NC | 6C | SCL |
| 7A | NC | 7B | NC | 7C | I2CGND |
| 8A | NC | 8B | NC | 8C | EP |
| 9A | SPENAB | 9B | SPENABGND | 9C | EPGND |
| 10A | +5V | 10B | +5V | 10C | +5V |
| 11A | GND | 11B | GND | 11C | GND |
| 12A | NC | 12B | NC | 12C | NC |
| 13A | NC | 13B | NC | 13C | NC |
| 14A | +15V | 14B | +15V | 14C | +15V |
| 15A | GND | 15B | GND | 15C | GND |
| 16A | -15V | 16B | -15V | 16C | -15V |

Figure 1.4. Modulation, Multiplication & Attenuator Block Diagram



Specifications

2

Characteristics of ASU2, Local Oscillator & Tune

2.1

The specifications below fit with the last upgrading of the unit. (February 1997)

RF specifications

2.1.1

| | |
|----------------------------|-------------------------------|
| Frequency range | 5 to 500 MHz |
| Gain | 1 dB \pm 1 dB |
| Input power | 4 dBm \pm 0,5 dB |
| Output power | 5 dBm \pm 1 dB for 4 dBm IN |
| Input VSWR | 1.4 |
| Output VSWR | 1.5 |
| Power out 1 dB Compression | 6 dBm |
| Output harmonics H2 | - 30 dBm |
| Output harmonics H3 | - 30 dBm |

Amplitude control

2.1.2

| | |
|-----------|---|
| | from 0 to +1V/-1V 100 Ω balanced load (MOD & MULT) |
| | Square law for modulation |
| | Linear law for multiplication |
| | Digital input for 20dB & 40dB Attenuation |
| | (1 : through - 0 : active) |
| SPF & BLK | (0 : through - 1 : blanked) |

Safety switch

2.1.3

SPENAB digital input (1 : RF Off)
(0 : RF On)

Dynamics

2.1.4

| | |
|------------------------|---|
| Dynamic range | 110 dB |
| Modulation dynamic | 50 dB |
| Multiplication dynamic | 30 dB |
| Attenuators | 20 dB (\pm 1dB) + 40 dB (\pm 1dB) @ 500 MHz |

Specifications

Phase shift

2.1.5

| | |
|--|---|
| Modulation @ 50 dB Range (25°C) | <10° for 400 MHz |
| Multiplication @ 30 dB | <7° for 400 MHz |
| Typical thermal stability (25°C to 50°C) | $\frac{\Delta\phi}{\Delta T} = -F \times 2.10^{-3} \text{ degree.K}^{-1}$ |
| (example : F = 400 MHz, T from 300 to 315k | $\Delta\phi = -12^\circ$) |

Isolation (SPENAB CMD), (MOD & MULT at max. level)

2.1.6

| | |
|--|----------|
| Isolation input / output | > 70 dB |
| Isolation input / output + ATT : 60 dB | > 110 dB |
| Isolation input1 / output2 channel 2 (Off) | > 110 dB |
| Isolation input2 / output1 channel 1 (Off) | > 110 dB |
| Channel 1 / Channel 2 isolation | > 110 dB |

Output noise level

2.1.7

| | |
|---------------------------------|-------------------|
| Unblanked (MOD, MULT = 0V) | < -135 dBm (1 Hz) |
| Unblanked (MOD, MULT = 2,5V) | < -124 dBm (1 Hz) |
| Blanked (ATT = 60 dB, SPF = 0V) | Thermal noise |

Switching time

2.1.8

| | |
|------------------|--------|
| Rise Time | 200 ns |
| DC Ringing | 150 mV |
| Fall Time | 100 ns |
| DC Ringing | 10 mV |
| Propagation Time | 40 ns |

Local Oscillator & Tune section specifications

2.1.9

Isolations

| | |
|------------------------------|------------------------|
| LO1 / LTI1 (signal ON AO1) | LO1 measured > 30 dB |
| AO1 / LTI1 (signal ON LO1) | AO1 measured > 40 dB |
| AO2 / LTI2 (signal ON FTUNE) | AO2 measured > 40 dB |
| FTUNE / LTI2 (signal ON AO2) | FTUNE measured > 55 dB |

Flatness

| | |
|--------------|-------------------------------|
| LO1 / LTI1 | ± -0,5 dB (+4dBm out typical) |
| FTUNE / LTI2 | ± -0,5 dB (-1dBm out typical) |

Characteristics of ASU2, Local Oscillator & Tune

DC requirements

2.1.10

| | |
|-------------|--------|
| Supply +15V | 700 mA |
| Supply -15V | 300 mA |
| Supply +5V | 120 mA |

Operating temperature

2.1.11

| | |
|----------------------------|---------------|
| Ambiance temperature range | +20°C @ +40°C |
|----------------------------|---------------|

Figures

| | |
|---|-----------|
| 1 Description | 7 |
| Figure 1.1. ASU2 / LO&T Front panel location | 7 |
| Figure 1.2. ASU2 / LO&T functional block diagram | 8 |
| Figure 1.3. ASU2 / LO&T RF Wiring diagram | 9 |
| Figure 1.4. Modulation, Multiplication & Attenuator Block Diagram | 12 |
| 2 Specifications | 13 |

Tables

| | | |
|------------|--------------------------------|-----------|
| 1 | Description | 7 |
| Table 1.1. | Front Panel Connector J1 | 10 |
| Table 1.2. | Rear Panel Connector J2 | 11 |
| 2 | Specifications | 13 |

