4222A

ALL CHANNEL UP CONVERTER

Type List

Type	Specifications
4222A-001	Standard
4222A-002	Standard + Noise Unit
4222A-003	Standard + 10Base-T
4222A-004	Standard + Noise Unit + 10Base-T

General

This unit is all channel up-converter that converts digital modulated signal to frequency range of 5MHz～1200MHz.
Particularly, this unit has been developed with the purpose to satisfy demand for offset frequency of terrestrial digital TV as well as further increase of performance.
IF signal of not only digital modulated signal, such as QAM/OFDM/VSB and etc., but also usual analog TV signal is frequency converted to desired RF signal.

Features

- Offset frequency (1/7MHz) corresponded to ISDB-T.
- Corresponding to output frequency resolution of 0.1Hz.
- Possible to synthesizer configuration referenced external reference frequency of 10MHz.
- Corresponding to wider range of input IF frequency. 35MHz～58MHz (Center frequency).
- Wider range of output RF frequency. 5MHZ～1200MHz.
- Possible to switch Non-Inversion/Inversion for spectrum polarity (Frequency conversion polarity).
- Noise adding function is built-in. BER measurement of receiver is done easily (Option).
- CW signal generation function. CW signal can be output regardless of input signal.
- IF input selector (4 inputs) is built-in.

Composition

Main Unit ……1
Dimensions 425(W)×99(H)×530(D) mm (Excluding projections)
Weight Approx. 16 kg
Accessories
Power Cable (Including 3pin→2pin converter) ……1
Rack Mount Adapter……1set
Instruction Manual and Test Result Sheet ……1
Power Source
Input Voltage Allowable Range : AC90V～AC250V (50Hz/60Hz)
Power Consumption : Approx. 135VA
Operating Environment
Temperature : +5℃～+40℃
Humidity : 45%～85%RH (No dew generation)

Rating

• IF Input

Number of Input Port : 4 (Selected 1route among them)
Input Signal : ①Digital modulated wave of signal band width of less than 10MHz.
②Analog TV-IF signal of negative modulation for video signal.
IF Center Frequency : ①35MHz～58MHz (Center Frequency)
②38MHz～61MHz (Video Frequency)
IF Input Level : −10dBm±6dB (Having AGC on input stage/Possible OFF)
Impedance : 50Ω/BNC-R
Return Loss : Less than −15dB (Within input band)
AGC on Input Stage : Average/Peak/AGC OFF Switching
Having AGC time constant switching (FAST/SLOW)

• RF Output

Center Frequency : 5MHz～1200MHz
Frequency Setting Resolution : 0.1Hz
Frequency Offset Function : Possible to offset±1/7MHz for setting output frequency
Output Level : Normal Mode +10dBm～−89dBm
Low Distortion Mode 0dBm～−89dBm
Output Level Setting Resolution : 0.01dB
AGC Function : Average/Peak/AGC OFF Switching
Impedance : 50Ω/N-R
Return Loss : Less than −15dB (Within output band)
Signal Band Width : 10MHzp-p
Spectrum Polarity (Frequency Converted Polarity) :
Non-Inversion/Inversion Switching

• 2nd-IF Input/Output (For connection to Eiden's Fading Simulator/Ghost Generator)

Input/Output Center Frequency : 284～286MHz (Depending on input IF frequency)
Input/Output Level : −12dBm～+3dBm (1dB step)
Impedance : 50Ω/BNC-R
Return Loss : Less than −15dB (Within input/output band)

Reference Signal Input/Output (External/Internal)

• External Reference Signal (EXT Ref. Mode) Input

Frequency : 10MHz±1ppm
Input Level : More than 0dBm
Impedance : 50Ω/BNC-R

• Reference Signal (External/Internal) Output

Frequency : 10MHz
Output Level : More than −2dBm
Impedance : 50Ω/BNC-R

• Noise Adding Function (Added on 2nd-IF/285MHz band) Option

C/N Setting Range : −5～+40dB
System Band Width Setting Range : 0.43MHz～10MHz (0.01MHz step)
C/N Accuracy : ±0.5dB MAX.
±0.1dB TYP. (@25°C, C/N =+5～+30dB)
Setting Resolution : 0.1dB

• Other Function

External Control Function : GP-IB/RS-232C are equipped as the standard.
Possible to equip 10BASE-T (Option)

Performance

• Output Level Accuracy

LEVEL \ FRQ	＜1000MHz	1000MHz≦
+10dBm～−39dBm	Less than ±1dB	Less than ±1.5dB
−39.01dBm～−69dBm	Less than ±1.5dB	Less than ±2.0dB
−69.01dBm～−89dBm	Less than ±2.5dB	Less than ±3.0dB

Wen mode is MGC or Fading, ±1dB is added on to above value.

• Output Frequency Accuracy

When internal reference is used. (Excluding accuracy of input frequency)
Less than±0.2ppm @RF Output Frequency≧50MHz
Less than±10Hz @RF Output Frequency ＜50MHz

• Deviation within Band

※Rfc : RF Output Center Frequency
①Rfc≧120MHz
・Frequency Response (BW : 8MHzp-p) Less than 1dBp-p
(BW : 10MHzp-p) Less than 1.5dBp-p
・Group Delay (BW : 7MHzp-p) Less than 5nsp-p
②120＞Rfc≧15MHz
・Frequency Response (BW : 8MHzp-p) Less than 1dBp-p
(BW : 10MHzp-p) Less than 1.5dBp-p
・Group Delay (BW : 7MHzp-p) Less than 15nsp-p

• IM3

①LEVEL MODE : NORMAL Less than −55dB
②LEVEL MODE : LOW DISTORTION Less than −70dB
But, excluding RFc＜15MHz

• C/N

①LEVEL MODE : NORMAL Less than −130dBc/Hz
②LEVEL MODE : LOW DISTORTION Less than −120dBc/Hz
But, excluding RFc＜15MHz

• Spurious

Less than −60dBc
(But, excluding harmonics)

• SSB Phase Noise

Less than −90dBc/Hz (Offset 1KHz)

※Under remote control, in case that unit is used for a long time by switching setting frequently, please consult with Eiden separately.