



ElectroMagnetic Compatibility(EMC) TEST EQUIPMENT

General Description

ES series, which SUNGSAN's accumulated broadband technology has been applied, is able to be remotely controlled by IEEE-488, Ethernet and RS-232.
Based on option, it can be operated separately by Touch LCD.
The ES series which provides up to 1kW of power with high performance is suitable for EMC lab testing.

Features

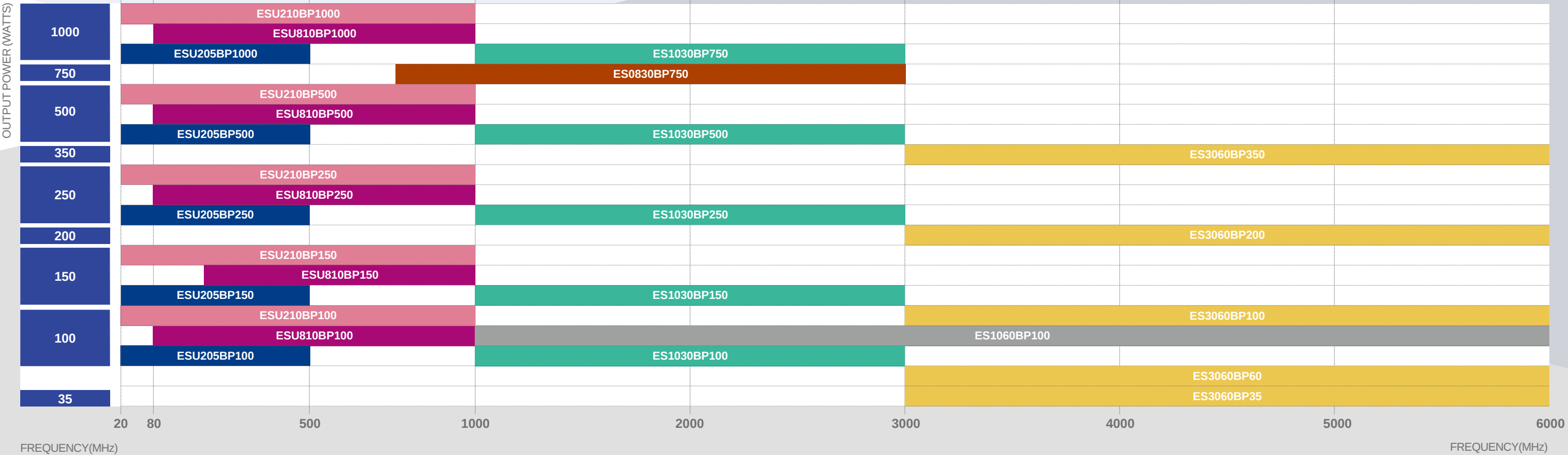
- 50 Ohm Input / Output impedance
- Gain Linearity by Auto Gain Control
- Remote control : IEEE-488, Ethernet, RS-232
- High reliability and ruggedness
- Built-in control, monitoring and protection functions

Applications

- Automated Production Test
- R&D Bench Test
- RF component Test
- RF Burn-in
- Antenna Power Aging
- Broad Band booster Amplifier

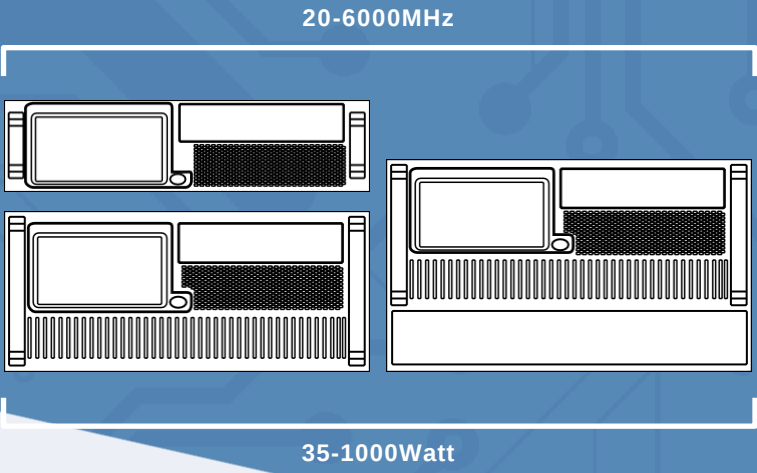
Option

- 19 inch (3U/5U/7U)
- Remote Control : GPIB(IEEE-488), LAN(Ethernet), RS-232
- LCD Touch Panel
- VSWR Alarm, Interlock Control
- Automatic Gain Control (AGC) mode
- RF In/Out : Front/Rear



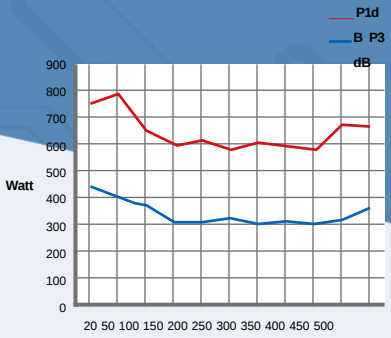
EMC

Product List



ESU205BP500

20-500MHz, 500W 7U



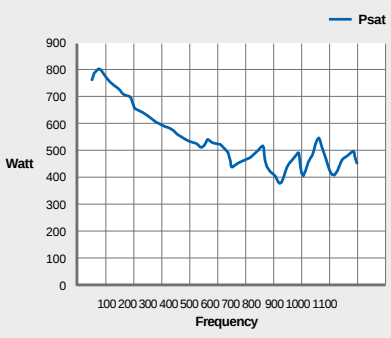
ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	20 ~ 500 MHz
Output Power CW	P _{SAT}	Min 500 Watt
Power Gain	G _P	Typ 60 dB
Power Gain Flatness	ΔG	Typ ±1.5 dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =500W	2 ND ,3 RD	Typ -20 dB / Max -16 dB
Third Order Intercept Point	IP3	Typ +62 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 3500 Watt

MODEL	Frequency Range (MHz)		Output Power (W)
	Start	Stop	
ESU205BP100	20	500	100
ESU205BP150	20	500	150
ESU205BP250	20	500	250
ESU205BP500	20	500	500
ESU205BP1000	20	500	1000
ESU810BP100	80	1000	100
ESU810BP150	80	1000	150
ESU810BP250	80	1000	250
ESU810BP500	80	1000	500
ESU810BP1000	80	1000	1000
ESU210BP100	20	1000	100
ESU210BP150	20	1000	150
ESU210BP250	20	1000	250
ESU210BP500	20	1000	500
ESU210BP1000	20	1000	1000
ES0830BP750	800	3000	750
ES1030BP100	1000	3000	100
ES1030BP150	1000	3000	150
ES1030BP250	1000	3000	250
ES1030BP500	1000	3000	500
ES1030BP750	1000	3000	750
ES1060BP100	1000	6000	100
ES3060BP35	3000	6000	35
ES3060BP60	3000	6000	60
ES3060BP100	3000	6000	100
ES3060BP200	3000	6000	200
ES3060BP350	3000	6000	350

ESU810BP500

80-1000MHz, 500W 7U

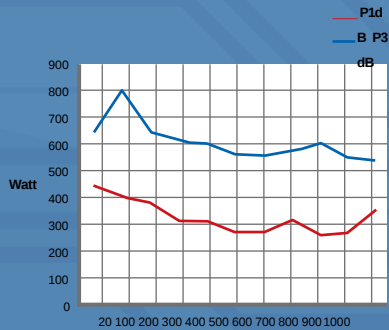


ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	80 ~ 1000 MHz
Output Power CW	P _{SAT}	Min 500 Watt
Power Gain	G _P	Typ 60 dB
Power Gain Flatness	ΔG	Typ ±1.5dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =500W	2 ND ,3 RD	Typ -20 dB / Max -16dB
Third Order Intercept Point	IP3	Typ +61 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 3500 Watt

ESU210BP500

20-1000MHz, 500W 7U

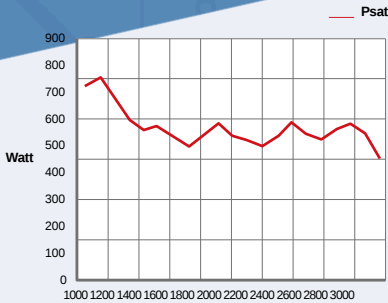


ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	20 ~ 1000 MHz
Output Power CW	P _{SAT}	Min 500 Watt
Power Gain	G _p	Typ 60 dB
Power Gain Flatness	ΔG	Typ ±1.5dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =500W	2 ND ,3 RD	Typ -20 dB / Max -16dB
Third Order Intercept Point	IP3	Typ +60 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 3500 Watt

ES1030BP250

1000-3000MHz, 250W 5U

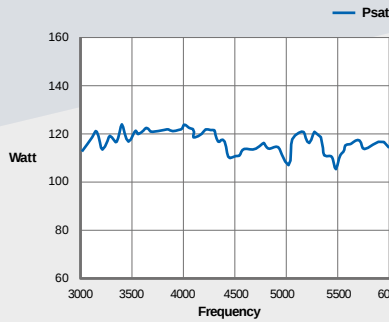


ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	1000 ~ 3000 MHz
Output Power CW	P _{SAT}	Min 250 Watt
Power Gain	G _p	Typ 57 dB
Power Gain Flatness	ΔG	Typ ±1.5dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =250W	2 ND ,3 RD	Typ -20 dB / Max -16dB
Third Order Intercept Point	IP3	Typ +60 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 2000 Watt

ES3060BP100

3000-6000MHz, 100W 5U

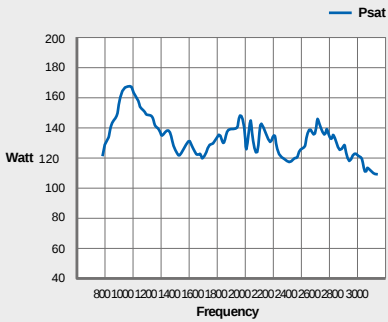


ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	3000 ~ 6000 MHz
Output Power CW	P _{SAT}	Min 100 Watt
Power Gain	G _p	Typ 54 dB
Power Gain Flatness	ΔG	Typ ±1.5dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =100W	2 ND ,3 RD	Typ -25 dB / Max -20dB
Third Order Intercept Point	IP3	Typ +55 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 1600 Watt

ES1030BP100

1000-3000MHz, 100W 3U



ELECTRICAL SPECIFICATIONS @100 or 240VAC, 25°C, 50Ω System

Parameter	Note	Specifications
Operating Frequency	BW	1000 ~ 3000 MHz
Output Power CW	P _{SAT}	Min 100 Watt
Power Gain	G _p	Typ 53 dB
Power Gain Flatness	ΔG	Typ ±1.5dB
Input Power for Rated P _{SAT}	P _{IN}	Typ 0 dBm
Input Impedance	Ω	50 ohm
Input VSWR	S ₁₁	Max 2.0:1
Harmonics @ P _{OUT} =100W	2 ND ,3 RD	Typ -20 dB / Max -16dB
Third Order Intercept Point	IP3	Typ +58 dBm
Primary Power		200-260V _{AC} , 50/60Hz Single phase
Power Consumption @ P _{SAT}	P _D	Typ 1000 Watt

Rack Mounted Amplifier

General Description

For applications, such as EMC Lab testing and Communications, SUNGSAN E&C provides rack-mounted amplifiers that are made up of from minimum 5U to maximum 12U per channel with output power capacity from 100W to 1000W, which are possible to be operated Multi-channel.

The Touch Display displays forward power, reflected power, output power, system status and simple menu option for making setting changes.

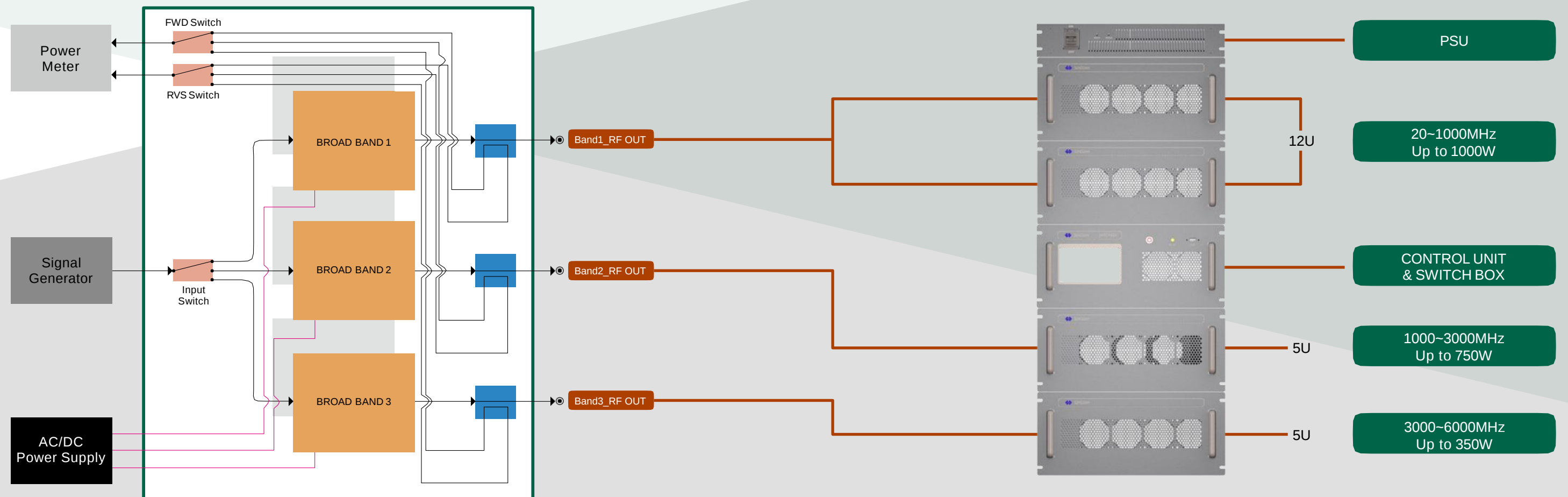
Digital interfaces as IEEE-488, Ethernet and RS-232 are available for remote on/off switch and power level control.

Main Feature

- Suitable for CW, AM, and FM
- High reliability and ruggedness
- Minimum 5U to Maximum 12U per Channel
- Minimum Output Power 100W to Maximum 1000W
- Set up and operate Multi-Channel
- Expansion of the maximum frequency



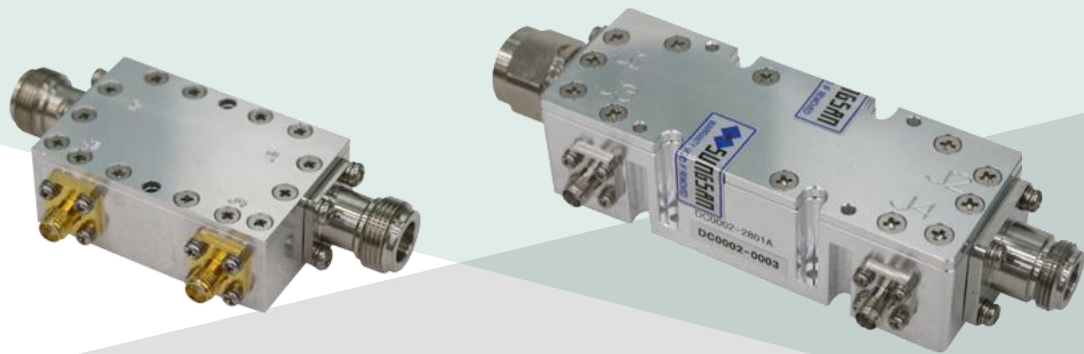
System Block Diagram



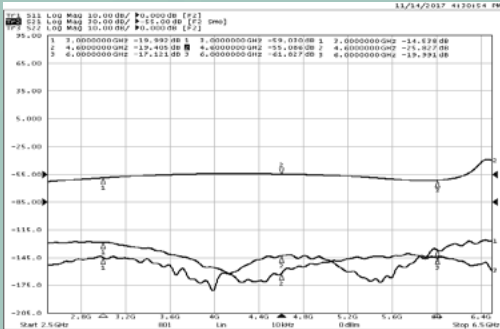
Directional Coupler

General Description

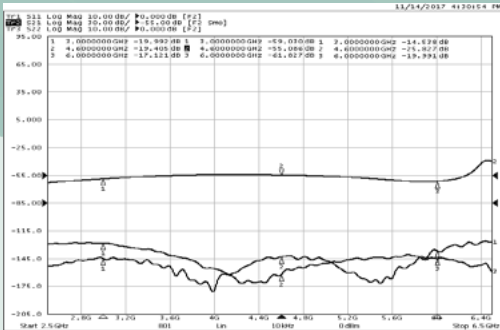
Directional Couplers are used extensively in a wide range of aerospace and military defense and wireless communications applications. Our directional couplers are offered in a variety of connectorized applications. Operating between 20 MHz to 20GHz frequency range, our couplers are ideal for real-estate constrained customers who need a high performing device for easy assembly.



MODEL	Frequency (MHz)		Power (W)	Coupling (dB)	Insertion (Max, dB)	VSWR (Max)	Directivity (Min, dB)
	Start	Stop					
DCU210P1000-60	20	1000	1000	60.0 ± 1.5	0.35	1.25 : 1	20.0
DCU210P500-60	20	1000	500	60.0 ± 1.5	0.35	1.25 : 1	20.0
DCU210P250-50	20	1000	250	50.0 ± 1.5	0.35	1.25 : 1	20.0
DCU210P100-50	20	1000	100	50.0 ± 1.5	0.35	1.25 : 1	20.0
DC1030P600-50	1000	3000	600	50.0 ± 1.0	0.30	1.35 : 1	15.0
DC1030P300-50	1000	3000	300	50.0 ± 1.0	0.30	1.35 : 1	15.0
DC1030P100-40	1000	3000	100	40.0 ± 1.0	0.30	1.35 : 1	15.0
DC3060P300-50	3000	6000	300	50.0 ± 1.5	0.35	1.30 : 1	15.0
DC3060P150-40	3000	6000	150	40.0 ± 1.5	0.35	1.30 : 1	15.0
DC3060P100-50	3000	6000	100	50.0 ± 1.5	0.35	1.30 : 1	15.0



<Coupling>



<Isolation>

DC3060P150-40 (3-6GHz Directional Coupler, 40dB)

PARAMETER	NOTE	SPECIFICATION	MEASUREMENT
Frequency	MHz	3000-6000	-
Insertion Loss	dB	Max 0.35	0.2
Coupling	dB	40 ± 1.5	39.5 ~ 40.58
VSWR	-	1.3 : 1	1.24
Directivity	dB	Min 15.0	15.3



<Coupling>

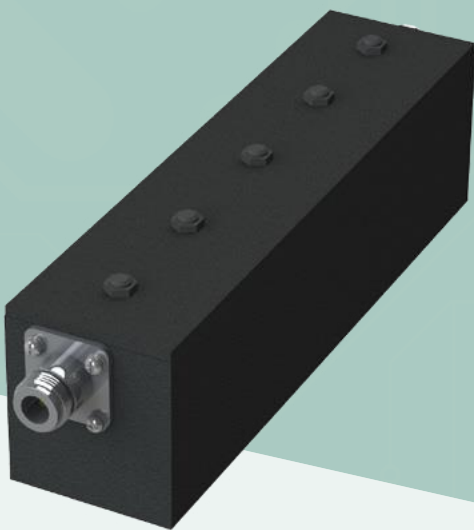


<Isolation>

DC1030P100-40 (1-3GHz Directional Coupler, 40dB)

PARAMETER	NOTE	SPECIFICATION	MEASUREMENT
Frequency	MHz	1000 ~ 3000	-
Insertion Loss	dB	Max 0.30	0.15
Coupling	dB	40 ± 1.0	39.5 ~ 40.5
VSWR	-	1.35 : 1	1.19
Directivity	dB	Min 15.0	15.7

Cavity Filter



Band Reject Filter / Notch Filter

A filter allows desired frequencies to pass while unwanted ones are suppressed. SSEC provides a Band Reject Filter line-up that consists of Cavity Filter, which completely performs its ability when EMC test is on-going. SSEC has filters that are available for the frequency of 10MHz to 20GHz.

KEY FEATURES	PRODUCTS
1. Low Insertion Loss	1. Band Pass Filter
2. High Power Handling	2. Band Reject Filter
3. High Isolation and Low IMD	3. Duplexer
4. High Experienced MTBF	4. Diplexer(LPF+HPF, BPF+BRF)
	5. Multiplexer(4 to 9 Bands)

MODEL	Reject Band (MHz)		Power (watt)	Pass Band (MHz)	Insertion Loss (Max, dB)	Return Loss (Min, dB)	Isolation / Rejection
	Start	Stop					
F741RP100	726	756	100	DC-716 / 766-2080	1.0	13	Min 50dB
F806RP100	791	821	100	DC-780 / 832-2200	1.25	13	Min 70dB
F847RP100	832	862	100	DC-821 / 873-2200	1.25	13	Min 70dB
F897RP100	880	915	100	DC-870 / 925-2400	1.25	13	Min 70dB
F942RP100	925	960	100	DC-915 / 970-2400	1.25	13	Min 70dB
F1747RP100	1710	1785	100	DC-1690 / 1805-4000	1.0	13	Min 70dB
F1842RP100	1805	1880	100	DC-1785 / 1900-4000	1.0	13	Min 70dB
F1950RP100	1920	1980	100	DC-1900 / 2000-4000	1.0	13	Min 70dB
F2140RP100	2110	2170	100	DC-2090 / 2190-4000	1.0	13	Min 70dB
F2535RP100	2500	2570	100	DC-2485 / 2585-4300	1.5	13	Min 70dB
F2655RP100	2620	2690	100	DC-2605 / 2705-4300	1.5	13	Min 70dB

SUNGSAN
Electronics & Communications

