

Robust, Reliable & Rational

**Company Presentation** 



May 2025



# **Company Profile**



2012	February	3Rwave established
	May	Registered as a venture company
2013	March	ISO9001 certified
	September	ISO14001 certified
	October	Registered as a partner company of KITECH
2016	September	A certified R&D Center Established
2017	January	Filter and Passive business launched
2018	October	RF Module business launched
2019	May	Registered as a Inno-Biz Company
2020	December	Certified as a Promising Exporting Small and Medium Enterprise by Ministry of SME
2021	November	Certified as a specialized company in materials, parts, equipment by KEIT
	December	Relocated to the new location in Seoul, Korea

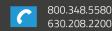
- Pursuing in Innovation, Quality and Commitment
- Specialized in designing and manufacturing RF devices and Modules
- Engineered by 25-year experienced engineers in design, manufacturing and troubleshooting

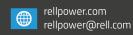
2022

2024

November

AS9100D Certified





Presently holding 13 patents (Korea, USA & China) and 1 patent on pending

# **Instruments and Equipment**



# **Major Instruments**

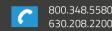
Item	Model	Quantity	Remark
Vester Network Analyzon	E5071C	5	8.5GHz & 20GHz
Vector Network Analyzer	E8364C	2	50GHz
Power Meter	E4419B	1	
Signal Computer	83650B	1	50GHz
Signal Generator	E4433B	2	
Oscilloscope	MSO6052A	1	
Constant Analysis	N9030A	1	50GHz
Spectrum Analyzer	E4407B	1	
Power Supply		8	
	N4431	1	8.5GHz, 4-Port
Electrical Cal Kit	85093	1	8.5GHz
	N4691B	1	20GHz

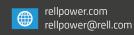
# **Design Software**

ltem	Quantity	Remark	
HFSS	1	3D EM Simulation	
ADS	1	Circuit Simulation	
Altium	1	Automated Circuit Design	
Solid Works 1		3D Mechanical Design	
ZWCAD	10	2D Mechanical Design	

# **Major Equipment**

Item	Model	Quantity	Remark
Temp. and Humidity Chamber	TH-KH-180	1	
Temp. and Humidity Chamber	ESPEC	1	
Simple Vibration Test Machine	WE-V2	1	
Thermal Platform with Liquid CO2	SD49-E	1	
Automated Soldering Machine	R501DT	1	
Digital Hot Plate	GLMP-D3030	6	
Soldering Iron	FX-951	6	
1500V Power Supply	KMC-16	2	20000µF Capacity
Phase Control Power Supply	KMC-1620K	4	
Laser Marking Machine	FM20D	1	
Reel Packaging Machine	IMT-1620K	2	
Pneumatic Press	PR-0001	3	
Cooling Water Circulator	M-4/M-5	2	
Stereoscopic Microscope	SZX16	2	

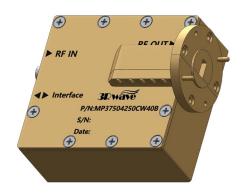




# **Power Amplifiers and Low Noise Amplifiers**



#### MP3504250CW40B



**Q-Band Downlink SSPA 38dBm Output Power** For LEO Satellite

#### MP45504800W41A



V-Band uplink SSPA **41dBm Output Power** for Ground Station

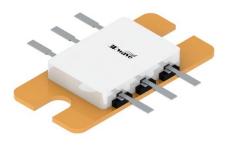
- Available from DC to V Band
- From Devices to Systems
- Capable to Develop Customized Broadband Device and Module

### ML01001800S20JA



1~18GHz Broadband **Switch Amplifier** 

### PD02000600P44A



2~6GHz 44dBm **Amplifier Device** 

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# **Block Up/Down Converters**



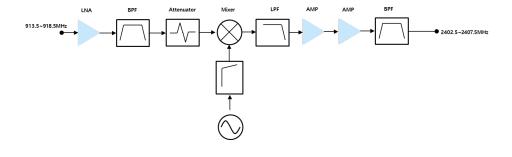
#### MBDC02400900S30A

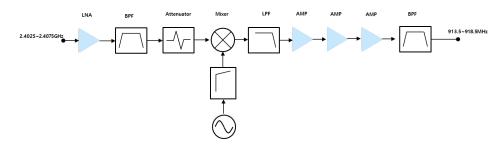


- Block Down Converter
- Input of 2.4GHz to Output 915.5MHz
- Output RF power of 30dBm

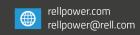
#### MBDU090002400S20A







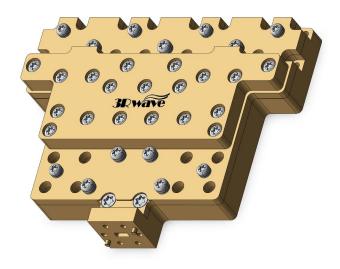
- Block Up Converter
- Input of 915.5MHz to Output 2.4GHz
- Output RF power of 20dBm



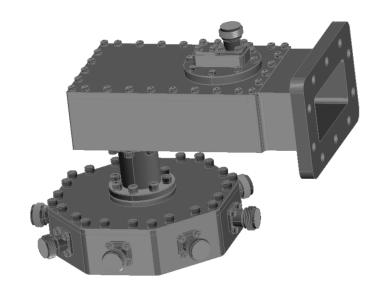
# **Waveguide Combiners**



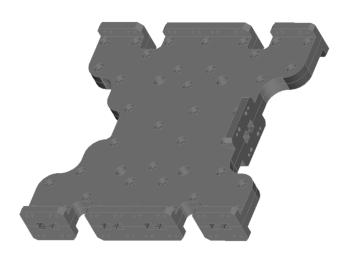
### **Q Band Magic-T Combiner**



### **S Band Spatial Combiner**



#### 6~18GHz WG Combiner



### **4-Way Combiner**

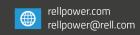
- Magic-Tee Structure
- Q Band
- **Integrated Directional Coupler**
- **LEO Satellite Application**

## 8-Way Combiner

- **Spatial Combiner**
- S Band
- **Integrated Directional Coupler**
- 4KW per each input Port

# **8-Way Combiner**

- **Typical Wideband Combiner**
- 6.5~18GHz
- **WRD650**
- 300W combined



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# **Ka-Band Waveguide Products**





Waveguide Isolator with coupler for Ka Band

# **Ka Band Specialty**

- Isolator / Circulator / Filters / Couplers
- Available From L Band to W Band
- Capable to Develop Customized Waveguide Assemblies

#### WDC27253025A30



Waveguide Coupler for Ka Band

#### WI27253025A1



Waveguide Isolator for Ka Band

# **Filters**





S-Band Multi-Channel Duplexer for LEO Satellite

#### FLB0400554A01



**LC Filter for VHF** 

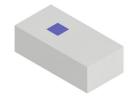
Partner

FCB228242A01



**Ceramic Filter for S-Band** 

#### FT13501850A01



LTCC Filter for Ku-Band

#### FAB13001450W01



Waveguide Filter for Ku-Band

# **Available Filter Types**

- Cavity Filters
- Waveguide Filters (Air filled & Ceramic filled)
- Ceramic Filters
- LC Filters
- LTCC Filters
- Microstrip Filters
- SSL (Suspended Stripline) Filters

## **Available Filter Configurations**

- BPF / LPF / HPF / BRF
- Duplexer / Diplexer / Multiplexer
- RF Modules based on Filters

# **Standard Dropin Isolators**



#### IPA14701540AA



0.25inch Isolator

#### IQA08001100AA



0.4inch Isolator

#### IHA092096AC

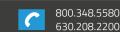


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0.75inch Isolator

- Robust and Reliable
- Universal Standard Dimensions from 0.25 to 3.0 inch in Width
- Frequency Range available from 150MHz to 18GHz

Series	Product Width	Frequency Range
ITA Series	3.0 inch	0.15 GHz~
ISA Series	2.0 inch	0.2 GHz~
IBA Series	1.5 inch	0.3 GHz ~
IDA Series	1.25 inch	0.4 GHz~
IFA Series	1.0 inch	0.5 GHz ~
IHA Series	0.75 inch	0.6 GHz ~
IMA Series	0.5 inch	1.2 GHz ~
IQA Series	0.4 inch	2.0 GHz ~
IPA Series	0.25~0.3 inch	4.0 GHz ~



# **Robust SMD Circulators**



#### **CAB525555AA**



**5mm Circulator** 

CPB249269AA



7mm Circulator

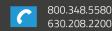


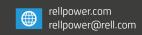
**18mm Circulator** 

Series	Product Diameter	Frequency Range
CHB Series	18mm	0.7 GHz~
CKB Series	14mm	1.2 GHz~
CQB Series	10mm	1.8 GHz ~
CPB Series	7mm	2.4 GHz~
CAB Series	5mm	3.0 GHz ~

- Robust & Low Cost
- 5G MMU Base Station
- Radars for S-Band, C-Band, X-Band
- Patented in US, China and Korea

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# **High power Circulators/Isolators**



#### WI242247W1



2.45GHz 6.5KW CW Isolator for RF Energy System

#### DVC032033WE1

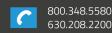


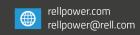
**325MHz 6KW CW Circulator for Particle Accelerator System** 

# **Applications**

- RF Energy Systems
- Particle Accelerator Systems
- Medical MRI Systems

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# AS9100D (KSQ9100:2018 / IS09001:2015) Certificate





Kiwa Korea Ltd. 411, SJ Technoville,

278, Beotkkot-ro, Geumcheon-gu, Seoul, Korea

Tel +82.2.3397.0101 Fax +82.2.3397.0105



KA 22191 19, 21 2022-11-22 2022-11-22

Aerospace Quality Management System Certificate

#### KS Q 9100:2018

Technically equivalent to AS9100D, EN 9100:2018 and JIS Q 9100:2016 ISO 9001:2015

We certify that the Aerospace Quality Management System of the Organization:

#### 3Rwave Co., Ltd.

Certification structure : single site

Has been audited in accordance with KAIA 9104-1:2012 requirements and it is in compliance with the standard KS Q 9100:2018 for the following products/services:

Design, development and manufacture of telecommunication devices for aerospace application

General Manager

Seung-Chan Lee

Kiwa Korea is accredited under the industry Controlled Other Party(ICOP) scheme. Maintenance of the certification is subject to continual surveillance audit and dependent upon the observance of Kiwa Korea's certification criteria.

#### **Certified Sites**

910ho, 25, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea



AS9100 Rev D is an aerospace standard that was released by the International Aerospace Quality Group (IAQG) based on the internationally recognized standard ISO 9001



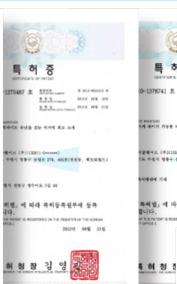


Technology

# **Patents**









제 10-2050567 호

제 10-2019-0083017 호

2019년 07월 10일

2019년 11월 25일

경기도 수원시 영통구 덕영대로1556번길 16, 디601호(영통동, 영통디지털엠파이어)

위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다. This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.

COMMISSIONER, KOREAN INTELLECTUAL PROPERTY OFFICE

박원주

2019년 11월 25일 특허청장

유원번호

982

등목임

발명의 명칭 Title of the 소형 비가역 회로소자 쓰리앜웨이브 주시회사/135811-\*\*\*\*\*\*

등목사항란에 기재

특허청

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(31)	855.***********************************		(1-********) 경도 274, 405호(영건등, 팩토리컬드)
	여벨,에 따라 독여등록원부에 등록되었음을 증권합니 tel, in accordance with the Patent Act, a patent for the insur- d at the Koman forMattal Property Office	C.	법」에 따라 특허등록원부에 t, in accordance with the Patent at the Korean Intellectual Prop
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	제 10-2447479 호 제 10-2021-0153248 호 2021년 11월 09월	F SMD TYPE HE SAME seenggi-do R); Dong Hwi ; Hee Suk )	(52) U.S. Cl. [BDF 1/04 (20)] (77) [BDF 1/04 (20)] (75) ABSTRACT Acociprosal element includes a louning la circumferential side portions with a plan and a bottom perfosion in which at least on is clifficial. A first lamination per includes with a plantially of capacitage, respectively, when the control of
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	발생(133311) 가산디지털1로 26 ,510호 (가산동, 대통예코노작운17차)		
	특허법」에 따라 특허원부에 등록되었음을 증명합니다. / that, in accordance with the Patent Act, a patent for the sen registered at the Korean Intellectual Property Office.		
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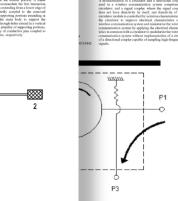
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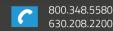
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Country	Patent Registered	Patent Pending
Korea	10	1
USA	2	1
China	1	1



# **Major Customers**











































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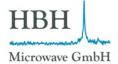






















# **Contact**



