

TAMAGAWA ELECTRONICS VIETNAM CO.,LTD

多摩川電子ベトナム株式会社

IN BUILDING
MULTI-PURPOSE **PRODUCTS**



2024

APPLICATION

BUILDING



ACTIVE PASSIVE



PUBLIC SAFETY

SHOPING MALL



METRO

AIRPORT



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DIRECTIONAL COUPLER

- ▶ 13 types of directional couplers are available with N/DIN 7/16, 4.31-10 Female connector.
- ▶ Those are used as distributing RF signal of base station from 2G to 5G and IBS base stations
- ▶ It separated to 3 frequencies range below.

698-2700MHz

698-4200MHz

500-6000MHz

Coupling value 5 /6/7/8/10/13/15/20/25/30/35/40 dB

Coupling Loss (dB)	0.9 to 1.6 dB
Insertion Loss (dB)	0.3 to 2.3 dB
Isolation (dB)	23 to 50
V.S.W.R.	1.3 max.
Impedance	50Ω
Passive Intermodulation	-150dBc/-155dBc/-160dBc (2×20W)
Average Maximum Power	CW 200W to 500W
Connector	N/DIN 7/16, 4.3-10 Female
Color	Black
Relative Humidity	≤95%
Waterproof	IP65
RoHS Applicant	Complied



POWER SPLITTER/DIVIDER

- ▶ Cavity RF power splitter is available with N/DIN 7/16, 4.31-10 Female connector. It is used for dividing a RF signal to two signals of equal amplitude of base station from 2G to 5G and IBS base stations
- ▶ It separated to 3 frequencies range below.

698-2700MHz

698-4200MHz

500-6000MHz

Splitter 2-Way, 3-Way, 4-Way

Splitter type	2-Way	3-Way	4-Way
Insertion Loss	≤ 3.3dB	≤ 5.4dB	≤ 6.6dB
V.S.W.R.		≤ 1.25 (Max 1.3)	
Impedance		50Ω	
Passive Intermodulation (dBc)		-150dBc/-155dBc/-160dBc (2×20W)	
Average Maximum Power		CW 200-500W Max	
Connector		N/DIN 7/16, 4.3-10 Female	
Color		Black	
Relative Humidity		≤95%	
Waterproof		IP65	
RoHS Applicant		Complied	



HYBRID COUPLER

- ▶ Tamagawa Hybrid combiner with 2 configuration 2x2, 2x1, 4x2 and 4x4, It is the 3dB and 6 dB coupler available in N /4.3-10 and DIN type.
- ▶ It is used as a combine and distributor of IBS and outdoor signal base stations.
- ▶ It can be used for various mobile system.
- ▶ Separated to 3 frequencies range below.
- ▶ The product is designed for GSM/ WCDMA/ LTE and 5GNR

698-2700MHz

617-4200MHz

500-6000MHz

Coupling Tolerance	≤ 3.1 to 6.2 dB
Insertion Loss	1.2 to 2 dB
V.S.W.R	≤ 1.3
Isolation	≥ 18 to 23 dB
Passive Intermodulation (dBc)	-150dBc/-155dBc/-160dBc (2×20W)
Power	200 to 300W
Impedance	50 Ohm
Connector	N/DIN 7/16, 4.3-10 Female
Color	Black
Relative Humidity	≤95%
Waterproof	IP65
RoHS Applicant	Complied



OMNI ANTENNA

- ▶ TMEV Omni antenna designed for in-building DAS/IBS system.
- ▶ The product is designed for GSM/LTE/WCDMA and 5G NR System.
- ▶ SISO, MIMO 2x2, 4x4
- ▶ Low PIM
- ▶ It separated to 3 frequencies range below.

698-2700MHz

698-3900MHz

617-6000MHz

Gain	3-5 dBi
VSWR	1.8 to 2
Isolation	15-23 dB
Polarization	Linear H V
Beamwidth-H	360°
Beamwidth-V	38° to 95°
Max input power	50W
PIM	<-150 dBc
Impedance	50Ω All ports
Color	White
Connector	N, 4.3-10 Female. Bottom side
Mounting	Celling
Color	White
Radome material	UV Resistance ABS
Radiator Materia	Copper
Waterproofing Class	IP40 indoor
RoHS Applicant	Complied



YAGI VPOL ANTENNA

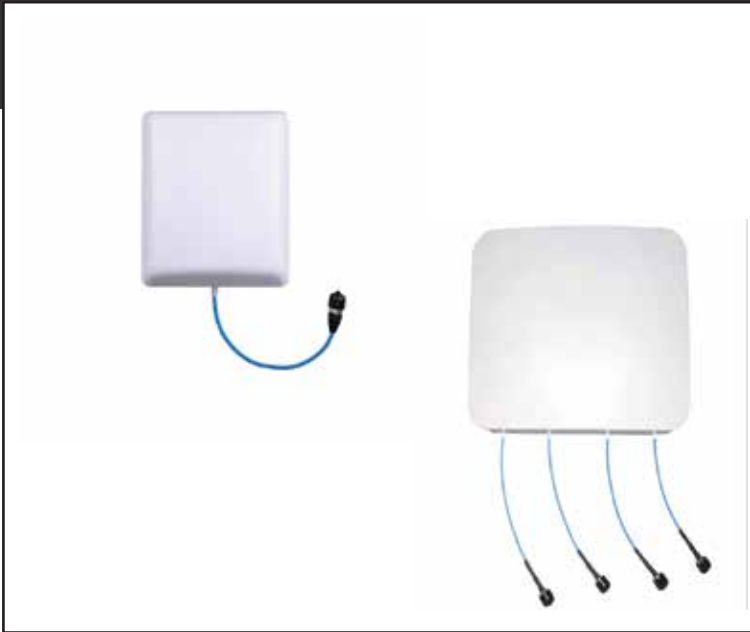
- ▶ TMEV Yagi VPOI antenna designed for in-building DAS/IBS and outdoor system.
- ▶ The product is designed for GSM/LTE/WCDMA and 5G NR System.
- ▶ Low PIM
- ▶ It separated to 3 frequencies range below.

698-2700MHz

698-3900MHz

617-6000MHz

Gain	9-12 dBi
VSWR	≤1.8
Polarization	Vertical
Beamwidth-H	50°-90°
Beamwidth-V	40°-70°
Front to back	≥15 dB
Max input power	50W
Impedance	50Ω All ports
Connector	N, 4.3-10 Female
Mounting	Pole mounting (Ø40 - Ø50mm)
Color	White
Housing material	ABS
Waterproofing Class	IP65
RoHS Applicant	Complied



PANEL ANTENNA

- ▶ TMEV Panel antenna designed for in-building DAS/IBS system.
- ▶ The product is designed for GSM/LTE/WCDMA and 5G NR System.
- ▶ SISO, MIMO 2x2, 4x4
- ▶ Low PIM
- ▶ It separated to 3 frequencies range below.

698-2700MHz

698-3900MHz

617-6000MHz

Gain	5-8 dBi
VSWR	≤ 1.8
Polarization	Vertical
Beamwidth-H	33 ^o -130 ^o
Beamwidth-V	20-100 ^o
Max input power	50W
Impedance	50Ω All ports
PIM	≤ -150 dBc
Connector	N, 4.3-10 Female. Bottom side
Mounting	Wall
Color	White
Radome material	UV-Resistance ABS
Key Radiator Material	Cooper
Waterproofing Class	IP40 indoor
RoHS Applicant	Complied



RF CONNECTOR

- ▶ TMEV designed several types of RFconnector for in-building DAS/IBS and outdoor system.
- ▶ The product is designed for 1/2" SF and S, 7/8"
- ▶ Low PIM.
- ▶ High quality.

Frequency range	DC-5G to12GHz
V.S.W.R.	≤ 1.3
Passive Intermodulation	-160dBc (2×20W)
Dielectric Withstanding Voltage	≥ 2500 to 5000V RMS,50Hz,at sea level
Working Voltage	≤ 1000 to 2500V RMS,50Hz,at sea level
Dielectric Resistance	≥ 1000 to 5000MΩ
Contact Resistance	Center Contact ≤ 0.4 to1mΩ Outer Contact ≤ 0.35 to1mΩ
Impedance	50Ω
Durability	Mating cycles ≥ 500
Moisture Resistance Test Method	IEC 60068-2-78
Mechanical Shock Test Method	IEC 60068-2-27
Thermal Shock Test Method	IEC 60068-2-14
Vibration Test Method	IEC 60068-2-6
Corrosion Test Method	IEC 60068-2-11
Protection Rate	IEC 60529 IP67
RoHS	Compliant



POINT OF INTERFACE

- ▶ TMEV designed several types of Point Of Interface for in-building DAS/IBS. The number of input and output as customer demand
- ▶ The product can be designed for any band/sub band of sub6 600-4800MH Low PIM.
- ▶ Flexible in fixed and modular configuration
- ▶ SISO or MIMO

6 input-2 output 60 input-4 output
9 input-2 output
12 input-2 output

Insertion Loss	≤ 5.5 dB
Return Loss	≥ 18dB
Isolation	In Band ≥ 18dB
	Inter Bands ≥ 35 dB
Impedance	50Ω All ports
Passive Intermodulation	≤ -150dBc(RX band) 2x43 dBm(TX band)
Power handling	100W max/port
Connector	N, DIN 7/16, 4.3-10 Female
Mounting	19inch rack mounted
Color	RAL7035 light gray/Black
Design	Fix, Modular
No of input	Customized
No of output	Customized
Fo/CPL Port	Yes



MASTER UNIT REMOTE UNIT

Tamagawa builds an active solution with fully concept in Single/Dual/ Triple band/- Multi-systems Optical Fiber Repeater called ACTIVITY DAS is the product to solve single coverage problem of indoor and outdoor. It is compatible with various 2G/3G/4G/5G technologies, VHF, UHF, Tetra, IoT, Military spectrum allocation in different frequency systems, and re-farming systems.

ACTIVITY solution work at FDD/TDD at 20W/40W output power per band. Which is offering flexible options to users.

In terms of materials selection and treat in QC, Tamagawa products use high-quality and rugged materials as option, which ensure long product working life and stable working performance.

Frequency	900/1800/2100/2600/3700-3900MHz
Gain	50±3dB
Max Output Power	20/40W
ALC	≥ 30dB
Gain Adjustable Range	30dB/1dBstep
Max Input power	10dBm
VSWR	≤1.5
Spurious emission	3GPP TS36.106(R10)
ACLR(@PAR=8dB)	3GPP TS36.106(R10)
Spectrum Emission Mask(PAR=8dB)	3GPP TS36.106(R10)
Impedance	50Ω
Optical Wavelength	Single Mode:1310/1550nm
Connector	RF : N-Female Optical: FC/APC
Monitoring & Control	Local: RS232 Remote:4G Modem (Optional)
Power Supply Mode	AC100V-260V, 50±5Hz
Color	White/black



LINE DAS MIMO

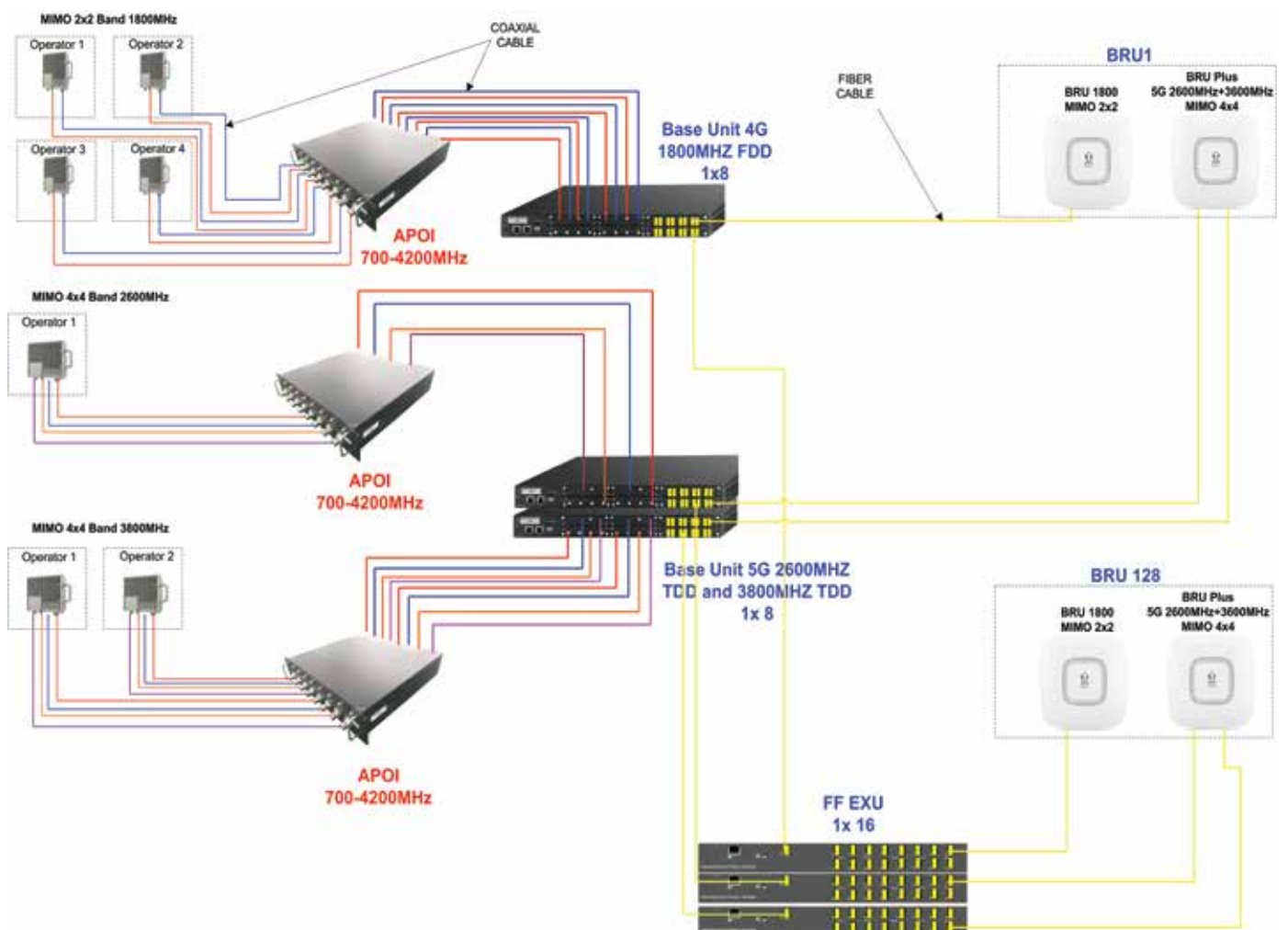
Tamagawa LINE DAS is an analogue system which is built in small power. It supports multi-band, multi-operator. The system can be configured for SISO, MIMO 2x2, 4x4. It works peacefully with any system. PoE or hybrid cables are available. Transmission is via CAT cable and optical cable. Antenna is built-in or external flexible on design and installation. The product solves the single coverage problem of indoors. It is compatible with various support CA (Carrier Aggregation) & MIMO (multi-input multi-output) configurations for 2G/3G/4G/5G technologies, in different frequency systems, and re-farming systems. It supports CA (Carrier Aggregation) & MIMO (multi-input multi-output) configurations for FDD/TDD sub6.

BASE UNIT

	1800MHz	2100MHz	2600MHz	3700-3900MHz
Frequency Band	1710~1880	1920~2170	2496-2690	3700-3800/3800-3900
No of operator	0		4	
Return loss			≤ -20	
Input power			0 To +24 dBm (2G/3G/4G) 5 To +24 dBm (5G)	
Impedance			50Ω All ports	
Full Bandwidth			DL : 400MHz UL : 280MHz 5G 300MHz	
Bandwidth each band			100MHz	
ALC			24-30 dBm	
Number of input			4 port/module (Total 12 port)	
No of RU max			64- 128 (Via extended)	
Support off air			Yes	

REMOTE UNIT

	1800MHz	2100MHz	2600MHz	3700-3900MHz
Frequency Band	1710~1880	1920~2170	2496-2690	3700-3800/3800-3900
Output power			14-23 dBm/band	
Internal antenna			Omni: 3dBi (BRU)	
Antenna isolation			20 dB	
Return loss			≤ -20	
Input power			By RJ45/ Optical	
Impedance			50Ω All ports	
Full Bandwidth			DL : 400MHz UL : 280MHz 5G 300MHz	
Support MIMO Modulation			2x2, 4x4 256 QAM	





LOAD ATTENUATOR

Tamagawa offered Load and attenuator from DC-4GHz/5GHz. Design with Non-PIM and LOW PIM . Support any conenctor N, SMA, DIN 7/16, 4.3-10, NEX10 by Male or female

Terminated load

Frequency	DC-4GHz/ DC-5GHz
VSWR	≤1.3
Max input power	5/10/20/50/100/150/200/500W
Impedance	50Ω All ports
Connector	NEX10,N, SMA, DIN 7/16/4.3-10 Female
Color	Black/Ivory
Housing material	Aluminum
Connector Pin	Brass (silver/gold plating)
RoHS Applicant	Complied

Attenuator

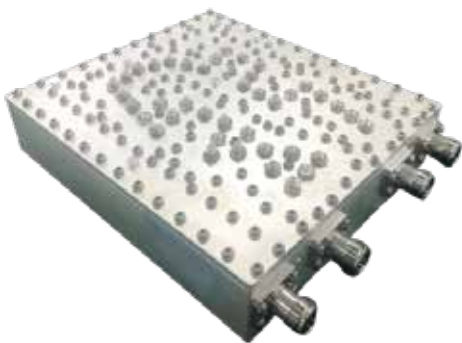
Frequency	DC-4GHz/ DC-5GHz
VSWR	≤1.3
Max input power	5/10/20/50/100/150/200/500W
Impedance	50Ω All ports
Attenuator	3/5/10/20/30/40 dB
Connector	NEX10,N, SMA, DIN 7/16/4.3-10 Female
Color	Black/Ivory
Housing material	Aluminum
Connector Pin	Brass (silver/gold plating)
RoHS Applicant	Complied

Combiner are built in FDD and TDD technologies. It work with any sub 6 frequency. Tamagawa can design inhouse with duplexer, diplexer, Triplexer, Quadruplexer, multiplexer. Application for indoor/outdoor. Can be customized for any output number port

COMBINER



Frequency	1800/2100/2600/3700-3900MHz
Insertion Loss	≤ 0.7
V.S.W.R	≤ 1.3
Isolation	≥ 50dB
Passive Intermodulation (dBc)	-150dBc (2×20W)
Power input port	100 W CW
Impedance	50 Ohm
Connector	N female
Color	Black/Silver plating
Relative Humidity	≤95%
Waterproof	IP40
RoHS Applicant	Complied



Frequency	1800/2100/2600MHz
Insertion Loss	≤ 0.7
V.S.W.R	≤ 1.3
Isolation	≥ 50dB
Passive Intermodulation (dBc)	-150dBc (2×20W)
Power input port	100 W CW
Impedance	50 Ohm
Connector	N female
Color	Black/Silver plating
Relative Humidity	≤95%
Waterproof	IP40
RoHS Applicant	Complied



Frequency	1800-2100MHz
Insertion Loss	≤ 0.5
V.S.W.R	≤ 1.3
Isolation	≥ 50dB
Passive Intermodulation (dBc)	-150dBc (2×20W)
Power input port	100 W CW
Impedance	50 Ohm
Connector	N female
Color	Black
Relative Humidity	≤95%
Waterproof	IP40
RoHS Applicant	Complied



Frequency	1800-2100/2300-3900MHz
Insertion Loss	≤ 0.7
V.S.W.R	≤ 1.3
Isolation	≥ 50dB
Passive Intermodulation (dBc)	-150dBc (2×20W)
Power input port	100 W CW
Impedance	50 Ohm
Connector	DIN 7/16 female
Color	Ivory
Relative Humidity	≤95%
Waterproof	IP65
RoHS Applicant	Complied

Please be noted, all products in this catalogue is general product and specification, for more detail of each product. Please contact our sales departmen at sales@tmev.vn for best support

