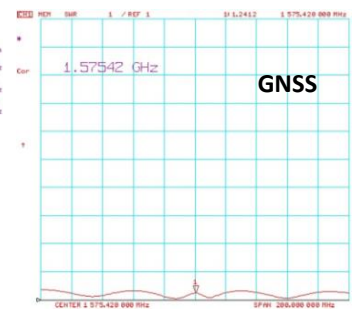
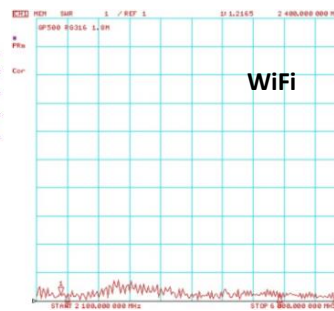
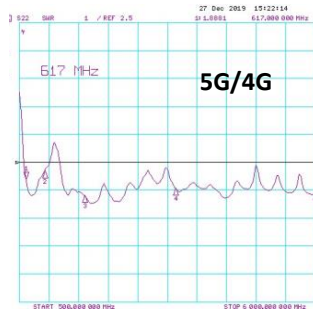


- ▶ 2 x 5G/4G LTE Elements
- ▶ 2 x WiFi Elements
- ▶ 1 x GPS/GLONASS Element
- ▶ Ultra-Wideband Surface Mount
- ▶ Low Profile

HOL-600/7200

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

	5G/4G x 2 ELEMENTS	WiFi x 2 ELEMENTS	GPS/GLONASS x 1
Frequency Range	617-960 / 1710-2700 / 3400-3800 / 4900-7200 MHz	2400-2500 / 4900-6000 MHz	1575.42 MHz / 1602 MHz
Peak Gain	2 dBi / 5 dBi / 4 dBi / 4 dBi	4 dBi / 5 dBi	27 dB $\pm$ 3 dB (LNA Gain)
Polarization	Linear (Vertical)	Linear (Vertical)	RHCP
VSWR	< 2.5	< 2.0	< 2.0
Impedance	50 Ω	50 Ω	50 Ω
Voltage			3 - 5V
Current			30 mA (Max)
Noise Figure			2.0 dB (Max)
Band Attenuation			20 dB min @ 1525 MHz 20 dB min @ 1652 MHz

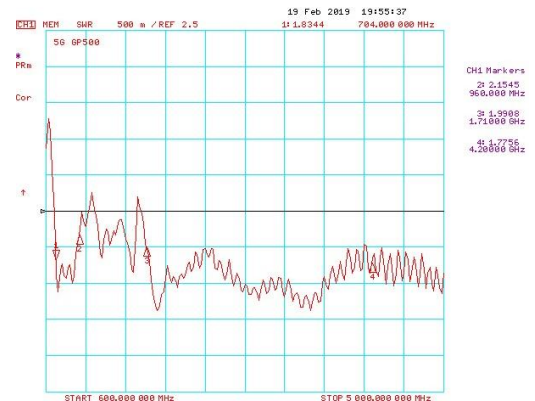
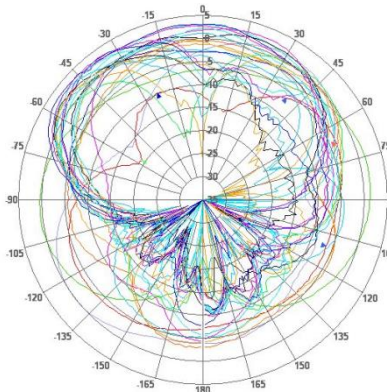
MECHANICAL SPECIFICATION

	5G/4G x 2 ELEMENTS	WiFi x 2 ELEMENTS	GPS/GLONASS x 1
Dimensions	$\varnothing$ 140 x 80 mm		
Radome Material	ASA(U/V)		
Cable Type	RG316 (Pigtail)	RG316 (Pigtail)	RG316 (Pigtail)
Connector	2 x SMA Male	2 x SMA Male	1 x SMA Male
Operating Temp.	-30° ~ +80°C		
Mounting	Screw Mount		

- ▶ 1 x 5G/4G/3G Element
- ▶ Covers 700-7200 MHz
- ▶ Low Profile
- ▶ Screw Mount

HA-5L(5G)

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	698 - 960 MHz	1710 - 2700 MHz	3400 - 4200 MHz	4900 - 7200 MHz
Peak Gain	1 dBi	2 dBi	2 dBi	? dBi
VSWR	< 2.5			
Polarization	Vertical			
Impedance	50 Ω			

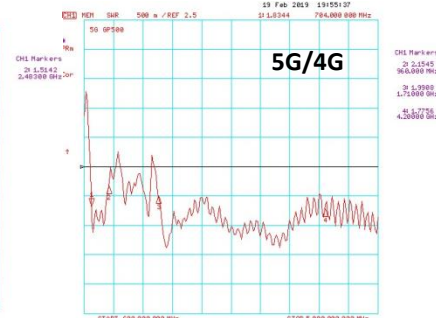
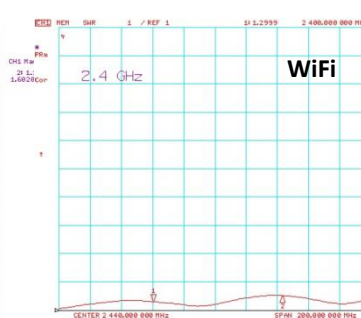
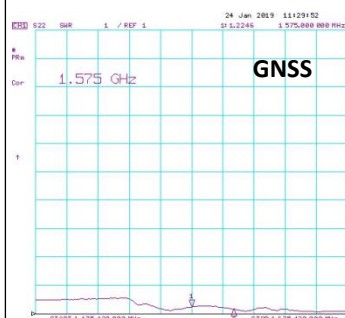
MECHANICAL SPECIFICATION

Dimensions	Ø104 x 29mm
Radome Material	PC ASA
Cable Type	RG174
Connector	SMA Male (Others available on request)
Mounting	Panel Mount

- ▶ 1 x 5G/4G Element
- ▶ 1 x WiFi Element
- ▶ 1 x GPS/GLONASS Element
- ▶ Low Profile
- ▶ Screw Mount

HA-5LWG(5G)

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

	GPS/GLONASS	5G / 4G / 3G	WiFi
Frequency Range	1575.42 MHz / 1602 MHz	698-960 / 1710-2700 / 3400-4200 MHz	2400 - 2500 MHz
Peak Gain	27 dB $\pm$ 3 dB (LNA Gain)	1 dBi / 2 dBi / 2 dBi	1 dBi
Polarization	RHCP	Vertical	Vertical
Pattern	Hemispherical	Omni Directional	Omni Directional
VSWR	< 2.0	< 2.5	< 2.0
Impedance	50 Ω	50 Ω	50 Ω
Voltage	3 - 5V		
Current	30 mA (Max)		
Noise Figure	2.0 dB (Max)		
Band Attenuation	20 dB min @ 1525 MHz 20 dB min @ 1652 MHz		

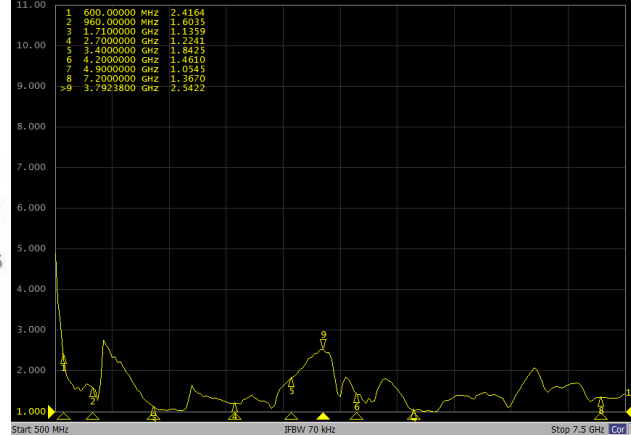
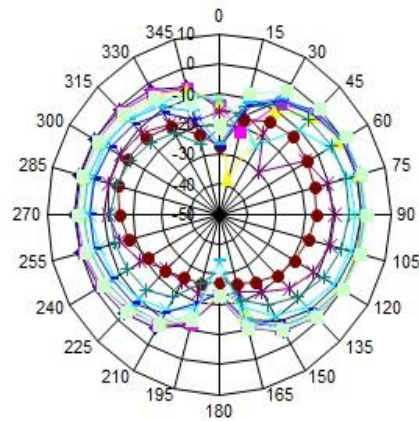
MECHANICAL SPECIFICATION

	GPS/GLONASS	5G / 4G / 3G	WiFi
Dimensions	$\varnothing$ 104 x 29mm		
Radome Material	PC ASA		
Cable Type	RG174	RG174	RG174
Connector	SMA Male (Others available on request)	SMA Male (Others available on request)	SMA Male (Others available on request)
Mounting	Panel Mount		

- ▶ Wideband Ceiling Mount Antenna
- ▶ Supports 2G/3G/4G/5G/WiFi

HA-600/7200S-NF

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	600 - 960 MHz	1710 - 2700 MHz	3400 - 4200 MHz	4900 - 7200 MHz
Gain (Peak)	2 dBi	7 dBi	5 dBi	5 dBi
VSWR	< 2.5	< 2.5	< 3.0	< 2.5
Radiation	Omni Directional			
Polarization	Vertical			
Impedance	50 Ω			

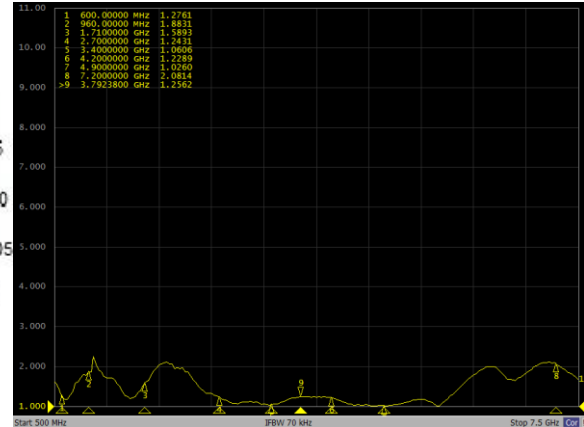
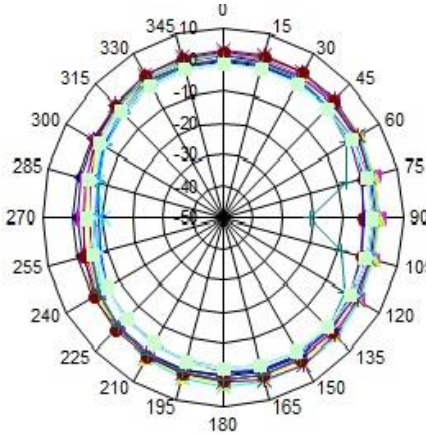
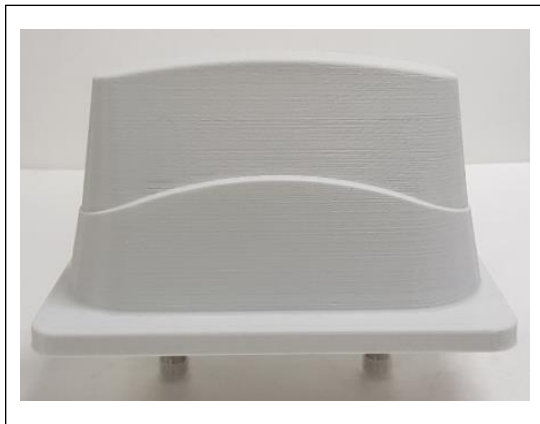
MECHANICAL SPECIFICATION

Dimensions	Ø250 x 152 mm
Radome Material	ABS
Connector	N Type Female
Mounting	Ceiling Mount

- ▶ Wideband MiMo Antenna
- ▶ Covers 2G/3G/4G/5G/WiFi
- ▶ Ceiling Mount

HA-600/7200M-NF

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	600 - 960 MHz	1710 - 2700 MHz	3400 - 4200 MHz	4900 - 7200 MHz
Gain (Peak)	3 dBi	6 dBi	7 dBi	7 dBi
VSWR	< 2.5	< 2.5	< 2.5	< 2.5
Radiation	Omni Directional			
Polarization	Vertical			
Impedance	50 Ω			

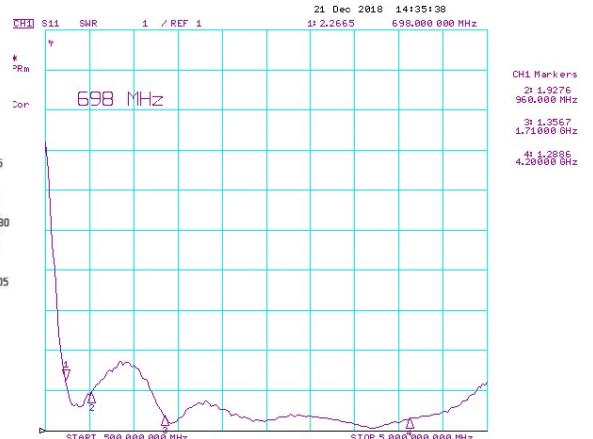
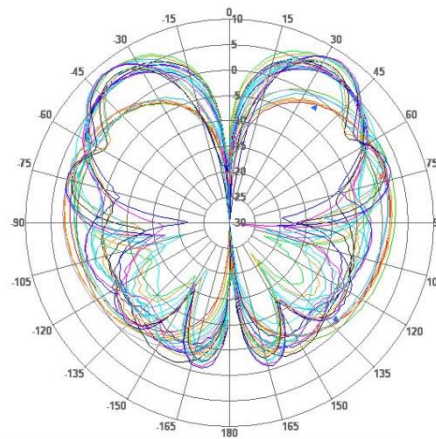
MECHANICAL SPECIFICATION

Dimensions	239 x 125 x 133 mm
Radome Material	ABS
Connector	2 x N Type Female
Mounting	Ceiling Mount

- ▶ Multi-band Antenna
- ▶ Covers 5G, 4G & 3G Bands
- ▶ Ceiling Mount

HOL-700/4200

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

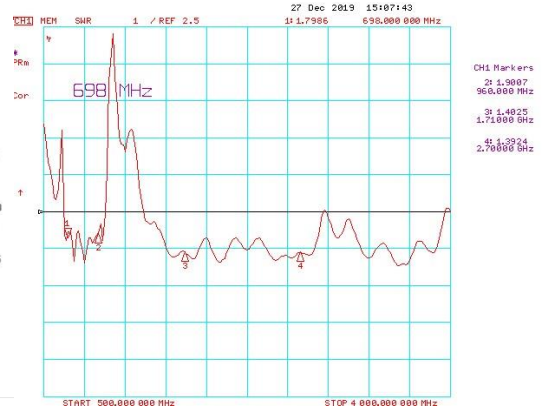
Frequency Range	698 - 960 MHz	1710 - 2700 MHz	3400 - 4200 MHz
Peak Gain	2 dBi	4 dBi	6 dBi
VSWR	< 2.5	< 2.0	< 2.0
Radiation	Omni Directional		
Polarization	Vertical		
Impedance	50 Ω		

MECHANICAL SPECIFICATION

Dimensions	Ø185 x 120mm
Radome Material	ABS
Connector	N Type Female
Mounting	Ceiling Mount

- # HSP-700/3800

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	698-960 / 1710-2700 / 3400-3800 MHz
Peak Gain	6 dBi / 7 dBi / 7 dBi
VSWR	< 2.5
Radiation	Directional
Polarization	Vertical
Impedance	50 Ω
Power Input	10 W (Max)

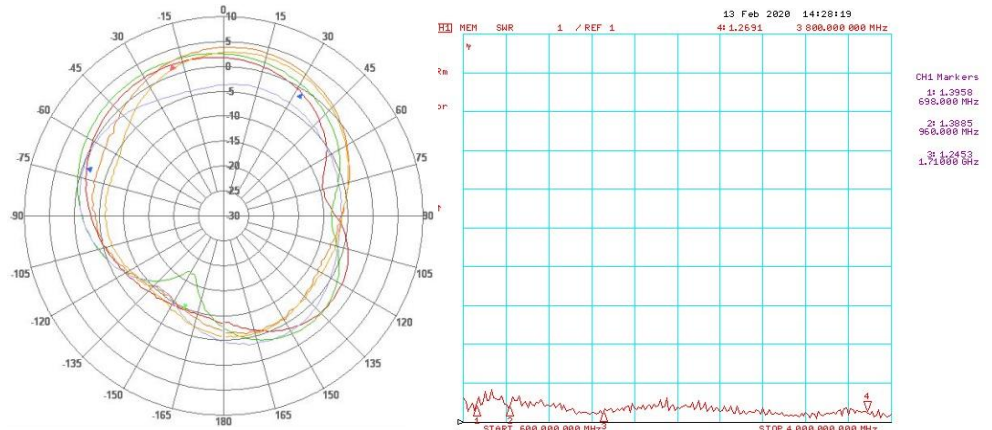
MECHANICAL SPECIFICATION

Dimensions	170 x 160 x 63 mm
Radome Material	ABS
Weight	533g (Antenna Only)
Cable Type	UT-141 Jacket
Connector	N Female
Operating Temp.	-30° ~ +60°C

HSP-700/3800-MIMO

- ▶ MiMo Directional Panel Antenna
- ▶ Supports MiMo across 2G/3G/4G & 5G
- ▶ Rugged & Weather Resistant Housing
- ▶ Bracket Mount

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

	5G / 4G / 3G	5G / 4G / 3G
Frequency Range	698-960 / 1710-2700 / 3400-3800MHz	698-960 / 1710-2700 / 3400-3800MHz
Peak Gain	5 dBi / 7 dBi / 6 dBi	5 dBi / 7 dBi / 6 dBi
VSWR	< 2.0	< 2.0
Radiation	Directional	
Polarization	+45 / -45	
Impedance	50 Ω	
Power Input	10 W (Max)	

MECHANICAL SPECIFICATION

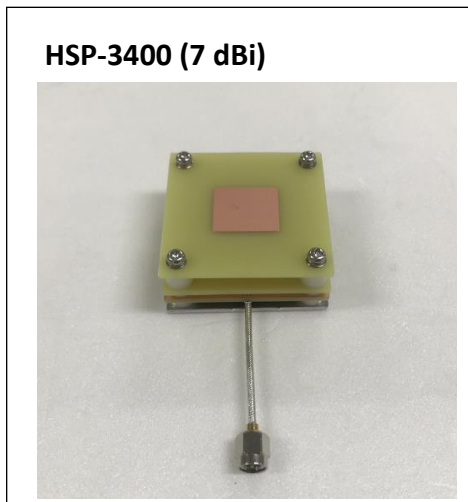
	GPS/GLONASS	5G / 4G / 3G
Dimensions	200 x 170 x 75 mm	
Radome Material	ABS	
Weight	495g (Antenna Only)	
Cable Type	LMR 200	
Connector	2 x SMA Male	
Operating Temp.	-30° ~ +60°C	

- ▶ For 5G Applications
- ▶ Module Type Antenna

HSP-3400

HSP4-3400

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Model No.	HSP-3400	HSP4-3400
Frequency Range	3.4 - 4.2 GHz	3.4 - 4.2 GHz
Peak Gain	7 dBi	12 dBi
VSWR	< 1.5	< 1.5
Radiation	Directional	Directional
Polarization	Vertical	Vertical
Impedance	50 Ω	50 Ω

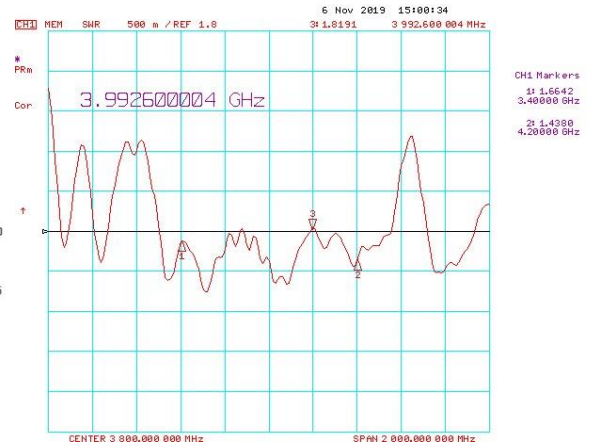
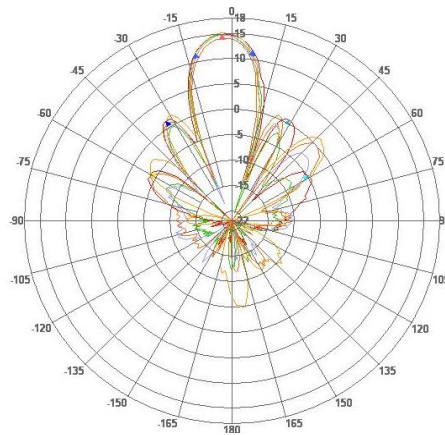
MECHANICAL SPECIFICATION

Dimensions	50 x 50 x 20mm	148 x 148 x 18mm
Cable Type	Semi-rigid	Semi-rigid
Connector	SMA Male	SMA Male

- For 5G Applications
- Directional Antenna
- 4 x 4 Arrayed Antenna
- High Gain

HSP16-3400

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	3.4 - 4.2 GHz
Peak Gain	15 dBi
VSWR	< 2.0
Radiation	Directional
Polarization	Vertical
Impedance	50 Ω

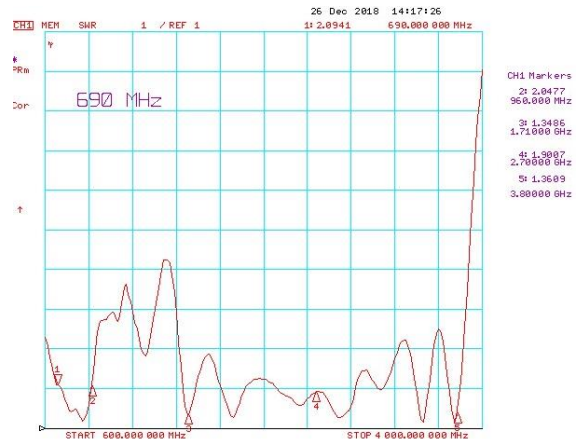
MECHANICAL SPECIFICATION

Dimensions	301 x 301 x 24mm
Cable Type	Semi-rigid
Connector	SMA Male (Others available on request)

- ▶ Blade Antenna
- ▶ Covers 5G, 4G LTE, 3G, GSM & Cellular Bands
- ▶ Waterproof (IP66 rate)

TB-700/3800 (WATERPROOF)

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	690-960 / 1710-2700 / 3400-3800 MHz
Peak Gain	2 dBi
VSWR	< 3.5
Impedance	50 Ω
Radiation	Omni Directional
Polarization	Vertical

MECHANICAL SPECIFICATION

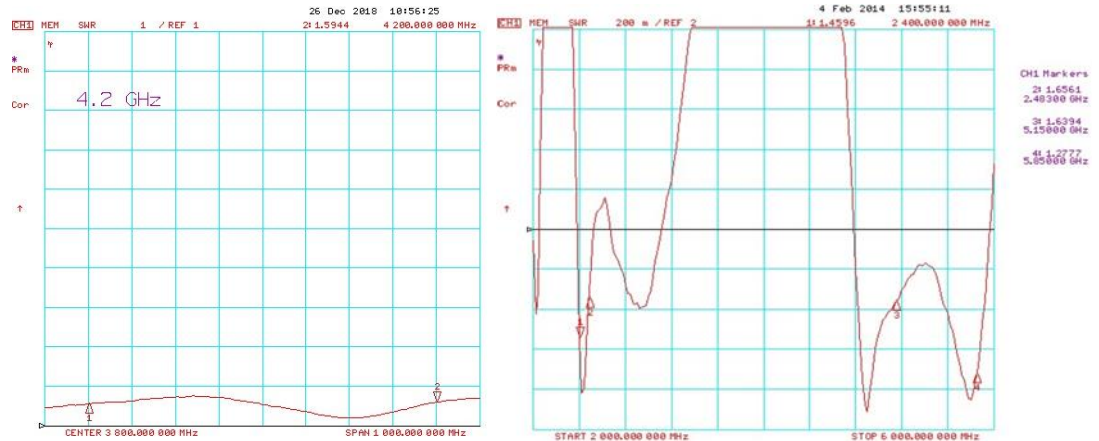
Radiating Element	1/2 Wave Element
Connector	SMA Male
Radome Material	Nylon
Overall Length	191 $\pm$ 2mm

- ▶ For 5G or WiFi Applications
- ▶ Compact Size
- ▶ Multi-Position Connector

TB-3400/4200-SMA

TB-2400/5000-SMA

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Model No.	TB-3400/4200-SMA	TB-2400/5000-SMA
Frequency Range	3400 - 4200MHz	2400-2483 & 5150-5850MHz
VSWR	< 2.0	< 2.0
Impedance	50 Ω	50 Ω
Radiation	Omni Directional	Omni Directional
Polarization	Vertical	Vertical
Gain	2 dBi	2 dBi

MECHANICAL SPECIFICATION

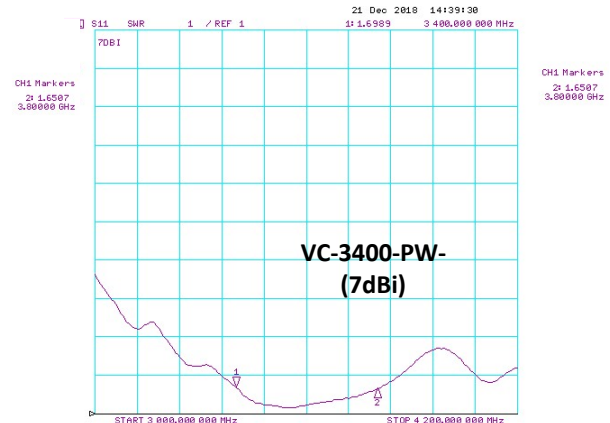
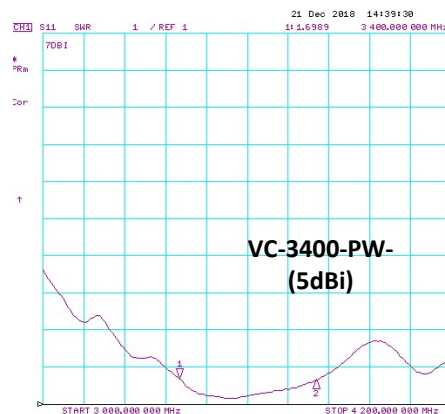
Dimensions	99 x 11 mm	99 x 11 mm
Connector	SMA Male	SMA Male
Radome Material	Nylon	Nylon
Weight	14 g	14 g
Operating Temp.	-30° ~ +80°C	-30° ~ +80°C

- ▶ For 5G Applications
- ▶ Covers 3.4 – 3.8GHz
- ▶ 5dBi Gain Version & 7dBi Gain Version

VC-3400-PW(5dBi)

VC-3400-PW(7dBi)

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Model No.	VC-3400-PW (5dBi)	VC-3400-PW (7dBi)
Frequency Range	3.4 - 3.8GHz	
VSWR	< 2.0	
Impedance	50 Ω	
Radiation	Omni Directional	
Polarization	Vertical	
Gain	5 dBi	7 dBi

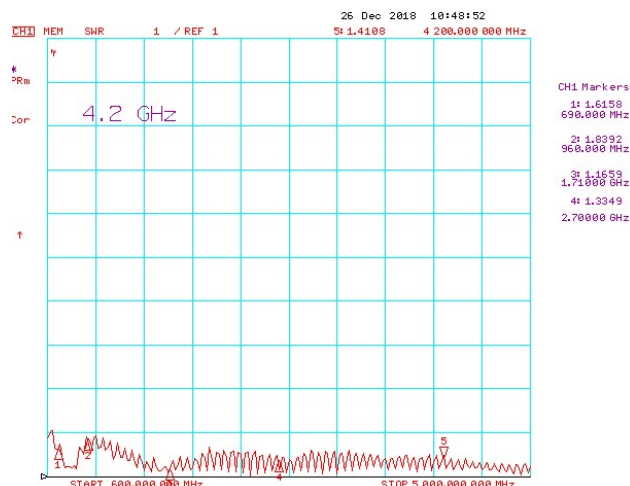
MECHANICAL SPECIFICATION

Dimensions	Ø22 x 263 mm	Ø22 x 350 mm
Radome Material	FRP (Pipe) / Nylon66 (Base) / Acetal (Cap)	
Connector	N Male	
Weight	98 g	108 g

- Covers 5G, 4G LTE, 3G, GSM & Cellular Bands
- Magnetic Mount

MB-700/4200

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	690-960 MHz / 1710-2700 MHz / 3400-4200 MHz
VSWR	< 2.5 / < 2.0 / < 2.0
Impedance	50 Ω
Radiation	Omni Directional
Polarization	Vertical
Gain	Unity

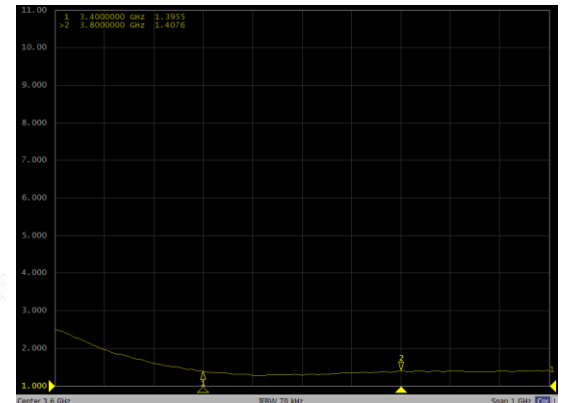
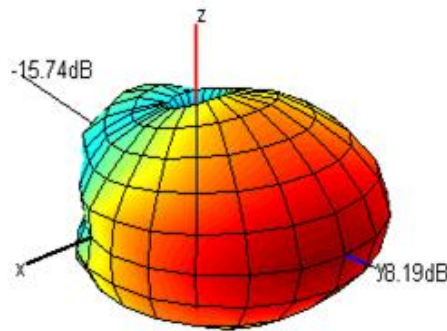
MECHANICAL SPECIFICATION

Radiating Element	1/4 Wave Element
Dimensions	Ø26.8 x 86.4 mm
Radome Material	Urethane
Cable / Connector	RG174 / SMA Male (Others available on request)
Mounting	Magnet Mount

- For 5G Applications
- Covers 3400 - 3800MHz
- Swivel Surface Mount

HIF-3500

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	3.4 - 3.8 GHz
VSWR	< 2.0
Impedance	50 Ω
Radiation	Directional
Polarization	Vertical
Gain	8 dBi
Power Input	50 W (Max)

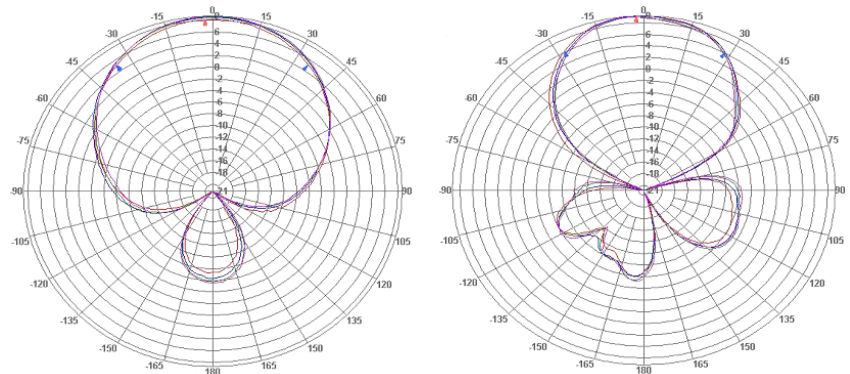
MECHANICAL SPECIFICATION

Dimensions	90 x 127 x 68 mm
Radome Material	ABS
Weight	160 g (Antenna Only)
Connector	SMA Female R/A
Operating Temp.	-30° ~ +60°C

- ▶ 2.4GHz Patch Antenna
- ▶ Swivel Surface Mount

HIF-2400

IMAGE & DATA



SPECIFICATION

ELECTRICAL SPECIFICATION

Frequency Range	2.4 - 2.5 GHz
VSWR	< 1.5
Impedance	50 Ω
Radiation	Directional
Polarization	Vertical
Gain	8.5 dBi
Half Power Beamwidth	Azimuth : 70° / Elevation : 55°
Front Back Ratio	15 dB
Power Input	50 W (Max)

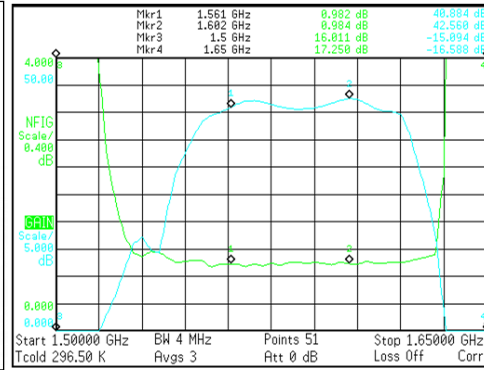
MECHANICAL SPECIFICATION

Dimensions	90 x 127 x 68 mm
Radome Material	ABS
Weight	160 g (Antenna Only)
Connector	SMA Female R/A
Operating Temp.	-30° ~ +60°C

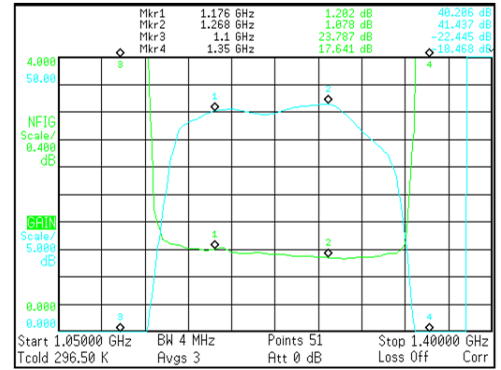
- ▶ High Gain Multi-Constellation Antenna
- ▶ Covers GPS/GLONASS/GALILEO/BEIDOU Bands
- ▶ Rugged & Weather-resistant Radome
- ▶ Pipe Mount

HAG-RTK

IMAGE & DATA



< GPS L1 / GLONASS L1 / GALILEO E2-L1-E1 / BEIDU B1 >



< GPS L2 & L5 / GLONASS L2 / GALILEO E5A, E5B & E6 / BEIDU B2 & B3 >

SPECIFICATION

SPECIFICATIONS (HAG-RTK)			
ANTENNA ELEMENT	Frequency Range	GPS : L1(1575MHz) GLONASS : G1(1602MHz) GALILEO : E2-L1-E1(1575MHz) BEIDOU : B1(1561MHz)	
	Polarization	R.H.C.P	
	Impedance	50Ω	
	Axial Ratio	< 1dB Typical (3.0 Max)	
	Gain at Zenith	> 5dBi	
	Output VSWR	< 1.5	
LOW NOISE AMPLIFIER	LNA Gain	40 ± 3dB	
	Noise Figure	1.1dB Typical (2.0 Max)	
	Impedance	50Ω	
	Ripple	±2dB	
	Band Attenuation	50dB Min @ 1500MHz	50dB Min @ 1100MHz
		50dB Min @ 1650MHz	50dB Min @ 1350MHz
	Output VSWR	< 2.0	
	Voltage	DC +3 ~ 12V	
	Current	Typical 26mA (Max 35mA)	
MECHANICAL SPEC.	Dimensions	Ø160 x 55mm	
	Connector	N type Female	
	Weight	385g	
	Operating Temperature	-40 ~ +80°C	
ENVIRONMENTAL SPEC.	Storage Temperature	-40 ~ +90°C	
	Ingress Protection	IP67	

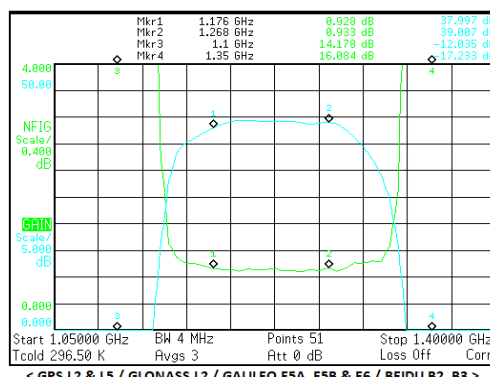
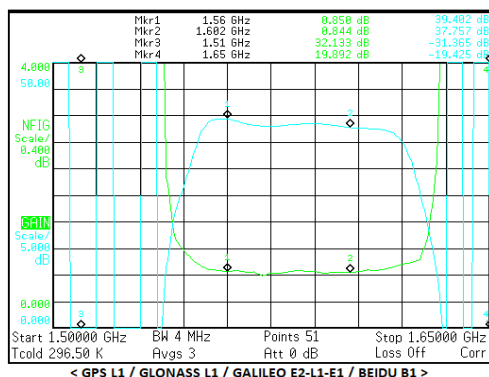
HANKOOK ANTENNA CO., LTD.

www.satena.co.kr

- ▶ High Gain Multi-Constellation Antenna
- ▶ Covers GPS/GLONASS/GALILEO/BEIDU Bands
- ▶ Compact Size

HAG-RTKMS

IMAGE & DATA



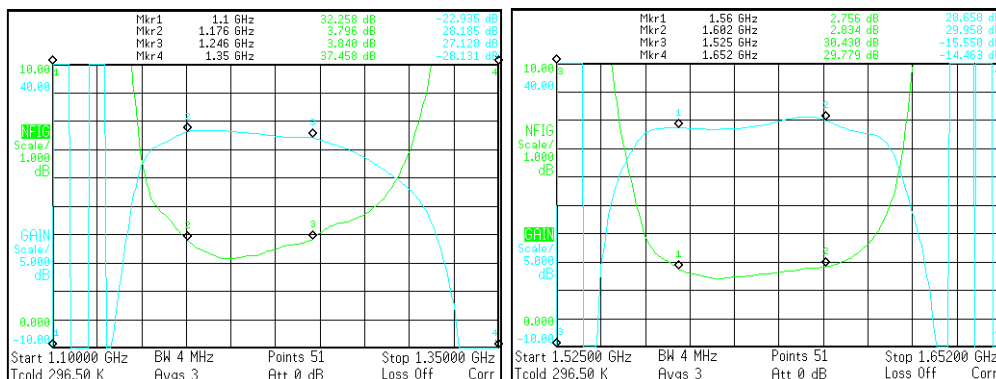
SPECIFICATION

SPECIFICATIONS			
ANTENNA ELEMENT	Frequency Range	GPS : L1(1575MHz) GLONASS : L1(1603MHz) GALILEO : E2-L1-E1(1575MHz) BEIDU : B1(1561MHz)	
	Polarization	R.H.C.P	
	Impedance	50Ω	
	Axial Ratio	3dB Typical	
	Gain at Zenith	GPS L1, GLONASS L1, GALILEO E2-L1-E1 & BEIDU B1 > 3dBi GPS L2, GLONASS L2, GALILEO E5B / E6 & BEIDU B2 / B3 > 1dBi GPS L5 & GALILEO E5A > -3dBi	
	Output VSWR	< 1.5	
LOW NOISE AMPLIFIER	LNA Gain	37 ± 3dB	
	Noise Figure	1.0dB Typical (1.5 Max)	
	Impedance	50Ω	
	Ripple	±2dB	
	Band Attenuation	50dB Min @ 1500MHz	50dB Min @ 1100MHz
		50dB Min @ 1650MHz	50dB Min @ 1350MHz
	Output VSWR	< 2.0	
	Voltage	DC +3 ~ 12V	
	Current	Typical 26mA (Max 35mA)	
MECHANICAL SPEC.	Dimensions	60 x 60 x 16.5 mm	
	Cable / Connector	RG174 / SMA Male (Others available on request)	
	Weight	144g	
ENVIRONMENTAL SPEC.	Operating Temperature	-40 ~ +80°C	
	Storage Temperature	-40 ~ +90°C	

- High Gain Multi-Constellation Antenna
- Covers GPS/GLONASS/GALILEO/BEIDU Bands
- Compact Size

HAG-RTKMS-G45

IMAGE & DATA



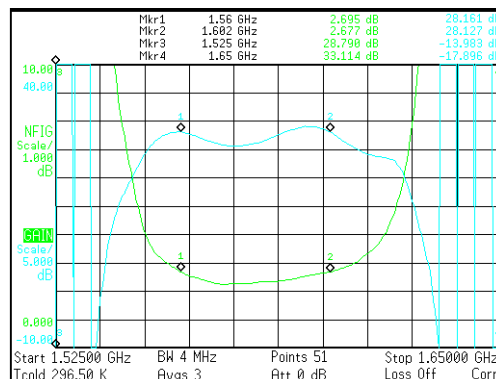
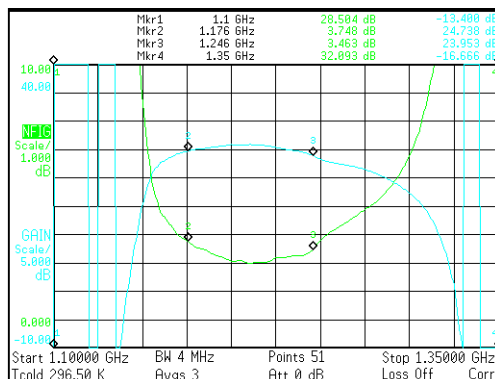
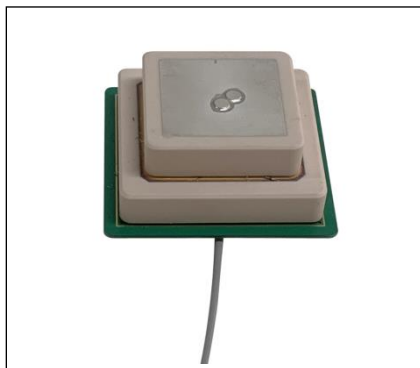
SPECIFICATION

SPECIFICATIONS			
ANTENNA ELEMENT	Frequency Range	GPS : L1(1575MHz) GLONASS : L1(1603MHz) GALILEO : E2-L1-E1(1575MHz) BEIDU : B1(1561MHz)	GPS : L2(1227MHz) GLONASS : G2(1246MHz) & G3(1202MHz) GALILEO : E5B(1207MHz) BEIDU : B2(1207MHz)
	Polarization	R.H.C.P	
	Impedance	50Ω	
	Axial Ratio	Max. 3dB	
	Gain at Zenith	GPS L1 / GLONASS L1 / GALILEO E2-L1-E1 / BEIDU B1 > 3dBi GPS L2 / GLONASS G2, G3 / GALILEO E5B / BEIDU B2 > 3dBi	
	Output VSWR	< 1.5	
	GROUND PLATE	100X100mm	
LOW NOISE AMPLIFIER	LNA Gain	28 ± 3dB	
	Noise Figure	2.7dB Typical (3.5 Max) PRE FILTER application 3.7dB Typical (4.5 Max) PRE FILTER application	
	Impedance	50Ω	
	Ripple	±2dB	
	Band Attenuation	50dB Min @ 1500MHz 50dB Min @ 1650MHz	50dB Min @ 1100MHz 50dB Min @ 1350MHz
	Output VSWR	< 2.0	
	Voltage	DC +3 ~ 12V	
	Current	Typical 10mA (Max 20mA)	
	Overall Gain (ANTENNA GAIN + INSERTION LOSS (COUPLER) + LNA GAIN)	31 ± 4dBi	31 ± 4dBi
MECHANICAL SPEC.	Dimensions	45 x 45 x 16.5 mm	
	Cable / Connector	RG174 / SMA Male (Others available on request)	
	Weight	99g	
ENVIRONMENTAL SPEC.	Operating Temperature	-40 ~ +80°C	
	Storage Temperature	-40 ~ +90°C	

- High Gain Multi-Constellation Antenna
- Covers GPS/GLONASS/GALILEO/BEIDU Bands
- Compact Size

HAG-RTKMS-G38

IMAGE & DATA



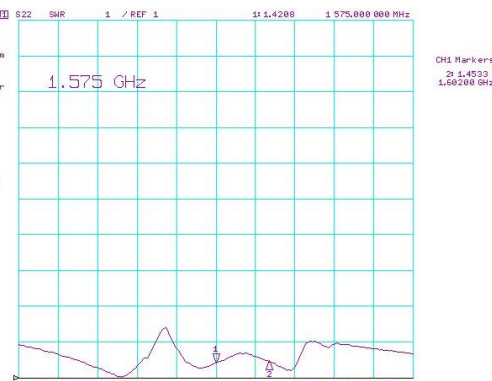
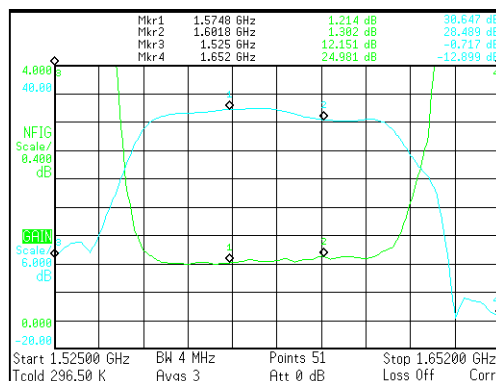
SPECIFICATION

SPECIFICATIONS			
ANTENNA ELEMENT	Frequency Range	GPS : L1(1575MHz) GLONASS : L1(1603MHz) GALILEO : E2-L1-E1(1575MHz) BEIDU : B1(1561MHz)	GPS : L2(1227MHz) GLONASS : G3(1201MHz) GALILEO : E5B(1207MHz) BEIDU : B2(1207MHz)
	Polarization	R.H.C.P	
	Impedance	50Ω	
	Axial Ratio	4dB Typical	
	Gain at Zenith	GPS L1 / GLONASS L1 / GALILEO E2-L1-E1 / BEIDU B1 > 1dBi GPS L2 / GLONASS G3, GALILEO E5B / BEIDU B2 > 1dBi	
	Output VSWR	< 1.5	
	GROUND PLATE	None ground plate(product only)	
LOW NOISE AMPLIFIER	LNA Gain	27 ± 3dB	25 ± 3dB
	Noise Figure	2.7dB Typical (3.5 Max) PRE FILTER application	3.7dB Typical (4.5 Max) PRE FILTER application
	Impedance	50Ω	
	Ripple	±2dB	
	Band Attenuation	50dB Min @ 1500MHz 50dB Min @ 1650MHz	50dB Min @ 1100MHz 50dB Min @ 1350MHz
	Output VSWR	< 2.0	
	Voltage	DC +3 ~ 12V	
	Current	Typical 10mA (Max 15mA)	
	Overall Gain (ANTENNA GAIN + INSERTION LOSS (COUPLER) + LNA GAIN)	28 ± 4dBi	26 ± 4dBi
MECHANICAL SPEC.	Dimensions	38 x 38 x 16.5 mm	
	Cable / Connector	RG174 / SMA Male (Others available on request)	
	Weight	48g	
ENVIRONMENTAL SPEC.	Operating Temperature	-40 ~ +80°C	
	Storage Temperature	-40 ~ +90°C	

- High Gain Multi-Constellation Antenna
- Covers GPS/GLONASS/GALILEO/BEIDU Bands
- Compact Size

HAG-GPSL1

IMAGE & DATA



SPECIFICATION

SPECIFICATIONS		
ANTENNA ELEMENT	Frequency Range	GPS : L1(1575MHz) GLONASS : L1(1603MHz) GALILEO : E2-L1-E1(1575MHz) BEIDU : B1(1561MHz)
	Polarization	R.H.C.P
	Impedance	50Ω
	Axial Ratio	3dB Max.
	Gain at Zenith	GPS L1 / GALILEO E2-L1-E1 / BEIDU B1 > 1dBi GLONASS L1 > -1dBi
	Output VSWR	< 1.5
	GROUND PLATE	None ground plate(product only)
LOW NOISE AMPLIFIER	LNA Gain	30 ± 3dB (1560, 1575MHz) 28 ± 3dB (1602MHz)
	Noise Figure	1.2dB Typical (2.0 Max)
	Impedance	50Ω
	Ripple	±2dB
	Band Attenuation	20dB Min @ 1525MHz 20dB Min @ 1650MHz
	Output VSWR	< 2.0
	Voltage	DC +3 ~ 12V
	Current	Typical 15mA (Max 20mA)
	Overall Gain (ANTENNA GAIN + INSERTION LOSS (COUPLER) + LNA GAIN)	30 ± 4dBi 26 ± 4dBi(1602MHz)
MECHANICAL SPEC.	Dimensions	30 x 30 x 10.5 mm
	Cable / Connector	RG174 / SMA Male (Others available on request)
	Weight	48g
ENVIRONMENTAL SPEC.	Operating Temperature	-40 ~ +80°C
	Storage Temperature	-40 ~ +90°C