

High Gain Multi-GNSS High Performance Precision Antenna

GNSS/GPS Antenna – Precision

GNSS-L1256-40TNC



Description

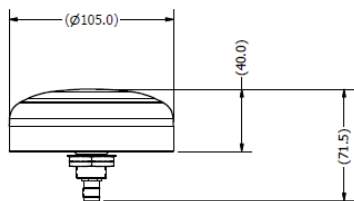
A high gain, low-profile multi-GNSS high performance antenna that supports all the GNSS services as well as the Iridium band.

Technologies

- GPS: L1/L2/L5
- Galileo: E1/E5a/E5b/E6
- GLONASS: G1/G2/G3
- Beidou: B1C/B1I/B2a/B2b/B3
- QZSS: L1/L2/L5/L6
- NavIC: L1/L5
- L Band: Correction Signals, 1525 - 1559 MHz
- Iridium: Coverage for 1616 - 1626.5 MHz

Features

- Full GNSS compatibility covering the frequency range 1164 - 1300 MHz and 1525 - 1626.5 MHz
- Coverage for all current GNSS services and Iridium in one package
- High Gain (40dB typ.)
- AAR compliant
- Excellent multipath mitigation
- Certified to MIL-STD-810G military-grade standards



GNSS-L1256-40TNC



GNSS-L1256-40TNC-MAG
(with magnetic mount)

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The GNSS-L1256-40TNC is a high gain, multi-GNSS high performance antenna that supports all the GNSS services as well as the Iridium band. It is designed to meet stringent AAR environmental standards. The antenna features a multi-element, stacked patch antenna design, a multi-stage LNA, and advanced filtering to combat the effects of out-of band interference. The antenna has a hermetic seal and is AAR tested and approved. The antenna comes with a 5-year warranty.

Features

- Full GNSS compatibility covering the frequency range 1164 - 1300 MHz and 1525 - 1626.5 MHz
- Coverage for all current GNSS services and Iridium in one package
- High LNA gain (40 dB) to boost GNSS signal strength and accommodate long cable runs
- Sharp filtering for improved out of band rejection and high multipath mitigation
- IP67 Ingress Protection
- Rugged antenna that complies with Association of American Railroads (AAR) Standards
- MIL-STD-810G compliant

Applications

- PTC Rolling Stock Tracking
- Military Vehicle & Asset Tracking
- Precision Agriculture
- Differential Correction
- GNSS Indoor Reradiation
- High Accuracy Time Sync
- Iridium Timing Recovery

Certifications



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Standard Configurations

Specification	Description	Frequency Ranges	Connector	Mount	Radome	Dimensions
GNSS-L1256-40TNC	Permanent-mount, 40 dB antenna covering all the GNSS bands (L1, L2, L5, and E6) and the Iridium band.	1164 - 1300 MHz, 1525 - 1626.5 MHz	Female TNC connector	Panel mount; ¾" thru-hole or bracket mount	White puck	4.1" Dia. x 1.65" H (105 mm Dia. x 42 mm H)
GNSS-L1256-40TNC-MAG	Magnetic-mount, 40 dB antenna covering all the GNSS bands (L1, L2, L5, and E6) and the Iridium band.	1164 - 1300 MHz, 1525 - 1626.5 MHz	Female TNC connector (side exit)	Magnetic mount		
GNSS-L1256-40SMA-MAG	Magnetic-mount, 40 dB antenna covering all the GNSS bands (L1, L2, L5, and E6) and the Iridium band.	1164 - 1300 MHz, 1525 - 1626.5 MHz	Female SMA connector (side exit)	Magnetic mount		

General Specifications (All models)

Specification	Measurement			
Antenna Type	Stacked Patch			
Polarization	RHCP			
Frequency Bands	1616-1626.5 MHz	1525-1610 MHz	1214-1300 MHz	1164-1214 MHz
	Iridium	GPS L1 Galileo E1 GLONASS L1 Beidou B1/B1-2 QZSS L1 NavIC L1 L Band (Correction Signals)	GPS L2 Galileo E6 GLONASS G2 Beidou B3 QZSS L2 NavIC L6	GPS L5 Galileo E5 (E5a & E5b) GLONASS G3 Beidou B2 QZSS L5 NavIC L5
Impedance	50 Ω			
VSWR	< 2.0:1			
LNA Gain	40 dB (typ.)			
Gain	Frequency	Passive Antenna Gain (at Zenith)	Elevation Plane 3-dB Beamwidth	Axial Ratio (at Zenith)
	1621 MHz (Iridium)	3.0 dBi	100°	1.6 dB
	1575 MHz (L1)	5.3 dBi	100°	0.6 dB
	1227 MHz (L2)	4.5 dBi	93°	0.9 dB
	1176 MHz (L5)	5.2 dBi	95°	1.2 dB
	1278 MHz (E6)	0.7 dBi	93°	1.4 dB

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Electrical Specifications – Band Specific

Band	Center Frequency (MHz)	Gain @ 90° Elevation (Zenith) [dBi]	Gain @ 45° Elevation [dBi]	Gain @ 10° Elevation [dBi]	Axial Ratio @ 90° Elevation (Zenith) [dB]	Average Axial Ratio @ 45° Elevation [dB]	Average Axial Ratio @ 10° Elevation [dB]
GPS L1	1575	5.3	2.8	-1.9	0.6	1.3	2.8
GPS L2	1227	4.5	1.6	-3.7	0.9	1.2	1.6
GPS L5	1176	5.2	2.4	-2.8	1.2	1.5	2.5
Iridium	1621	3.0	0.5	-4.0	1.6	2.5	3.7
GALILEO E1	1575	5.3	2.8	-1.9	0.6	1.3	2.8
GALILEO E5	1191	5.8	3.0	-2.3	0.8	1.3	2.0
GALILEO E5a	1176	5.2	2.4	-2.8	1.2	1.5	2.5
GALILEO E5b	1207	5.6	2.9	-2.5	0.7	1.1	1.6
GALILEO E6	1278	0.7	-2.1	-7.7	1.4	1.8	2.5
GLONASS L1	1602	4.5	2.1	-2.4	1.4	1.7	4.0
GLONASS L2	1246	2.9	0.1	-5.2	1.2	1.4	1.8
GLONASS L3OC	1202	5.8	3.0	-2.4	0.7	1.2	1.6
BEIDOU B1	1561	4.8	2.3	-2.5	0.4	1.4	2.6
BEIDOU B11-2	1589	5.1	2.8	-1.8	1.1	1.4	3.6
BEIDOU B2	1201	5.8	3.0	-2.4	0.7	1.2	1.6
BEIDOU B3	1268	1.2	-1.5	-7.0	1.4	1.7	2.2
QZSS L1	1575	5.3	2.8	-1.9	0.6	1.3	2.8
QZSS L2	1227	4.5	1.6	-3.7	0.9	1.2	1.6
QZSS L5	1176	5.2	2.4	-2.8	1.2	1.5	2.5
QZSS L6	1278	0.7	-2.1	-7.7	1.4	1.8	2.5

LNA Specifications

Gain		
LNA Gain	40 dB nom.	
Input P1dB	-47 dBm	
Noise Figure	1164 - 1214 MHz 1214 - 1300 MHz 1525 - 1610 MHz 1616 - 1626 MHz	2.0 dB, Typ. 2.0 dB, Typ. 2.8 dB, Typ. 2.5 dB, Typ.
Group Delay Variation	1164 - 1214 MHz 1214 - 1300 MHz 1525 - 1610 MHz 1616 - 1626 MHz	±5 ns (See Included Graphs)
DC Input Voltage	2.8 - 5.5 V	
DC Current	43 mA, Typ.	
Out-of-Band Rejection	f < 925 MHz f < 1110 MHz 1350 MHz < f < 1470 MHz f > 1670 MHz f > 2000 MHz	> 80 dB > 40 dB > 40 dB > 40 dB > 80 dB

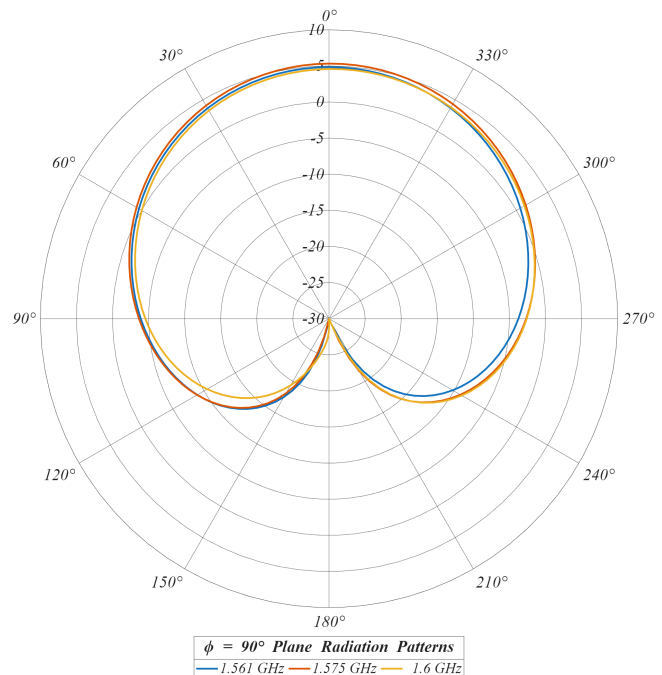
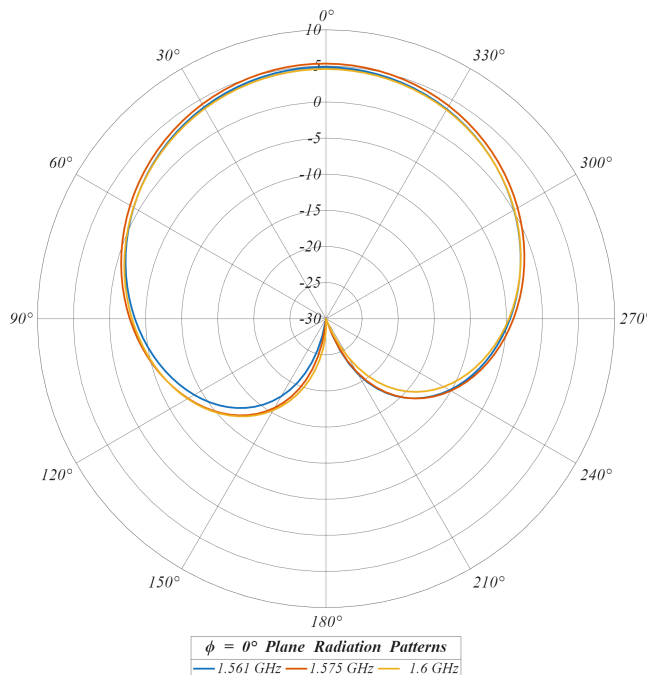
Mechanical & Environmental Specifications

Specification	Measurement	
Antenna Dimensions (D x H)	4.1" Dia. x 1.65" H (105 mm Dia. x 42 mm H)	
Radome Color	White	
Connector	GNSS-L1256-40TNC GNSS-L1256-40TNC-MAG GNSS-L1256-40SMA-MAG	TNC Female TNC Female SMA Female
Weight	16 oz (453.6 g)	
Environmental Rating	MIL-STD-810G AAR Compliant	
Ingress Protection	IP67	
ESD Protection	IEC-61000-4-2, 15 kV	
Compliance	CE, ROHS, REACH	

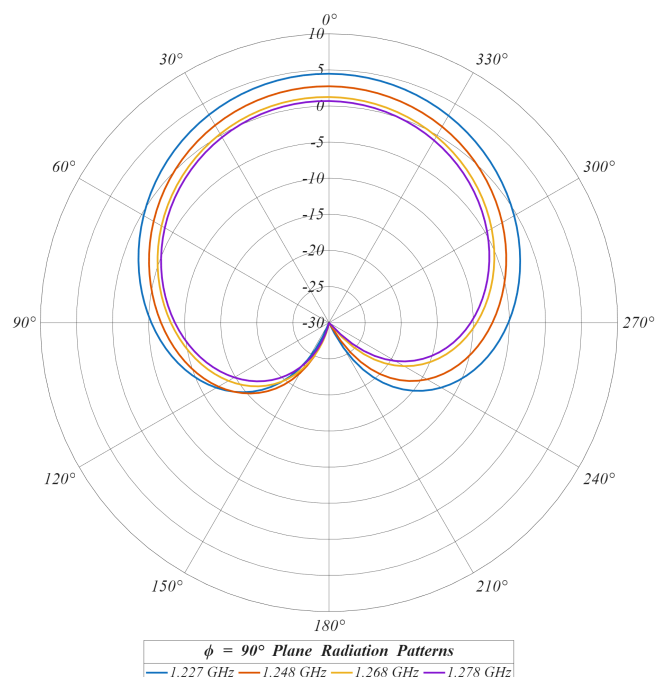
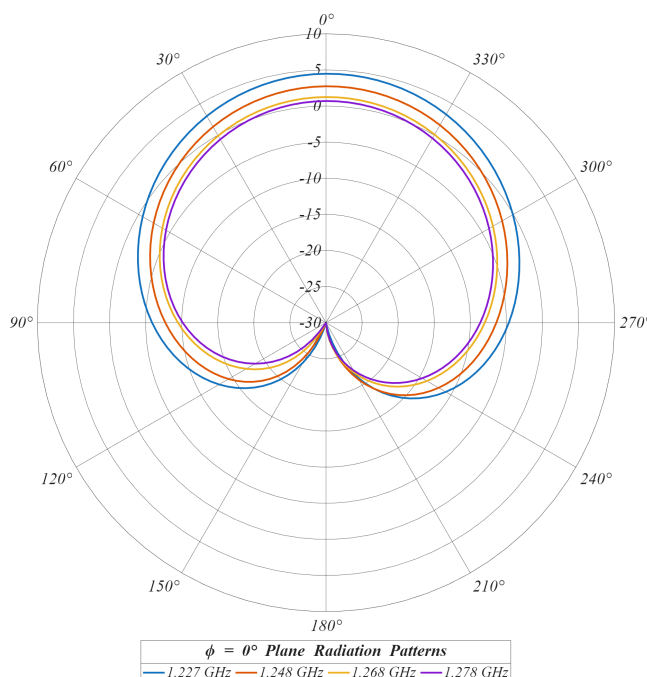
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Upper L-Band (L1, E1, G1, B1)



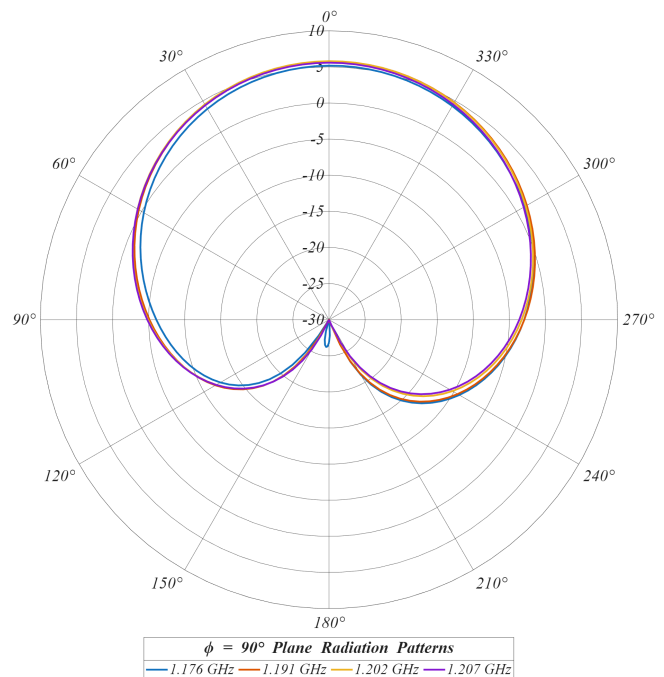
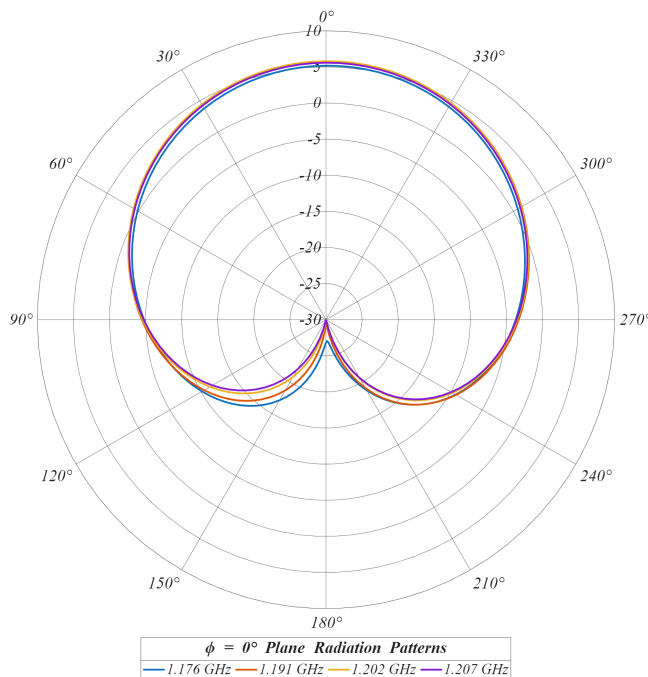
Middle L-Band (L2, E6, G2, B3)



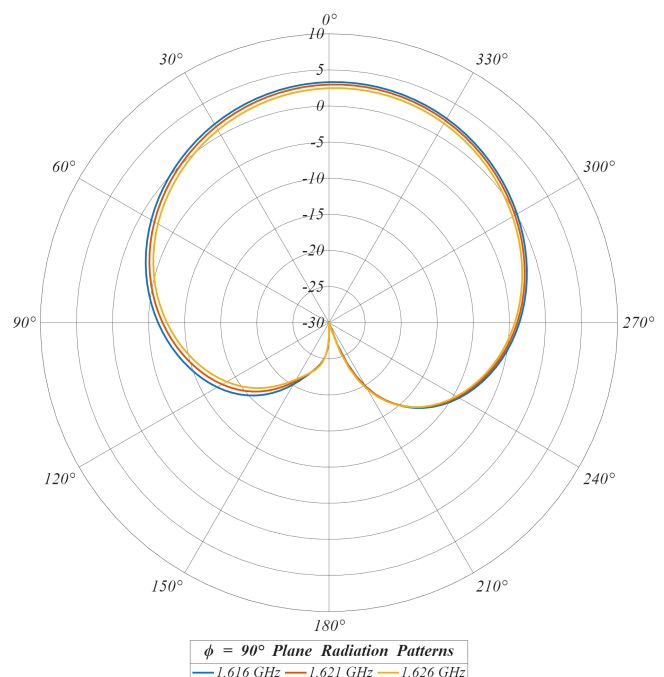
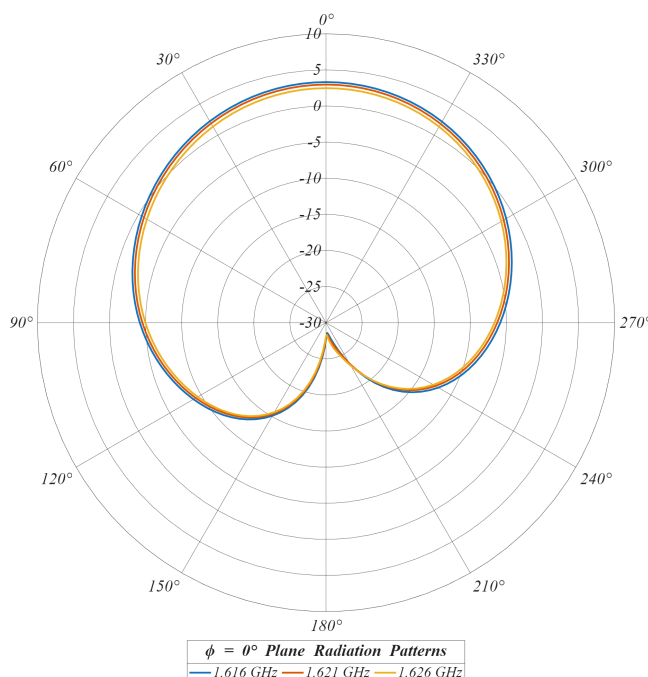
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Lower L-Band (L5, E5, G3, B2)



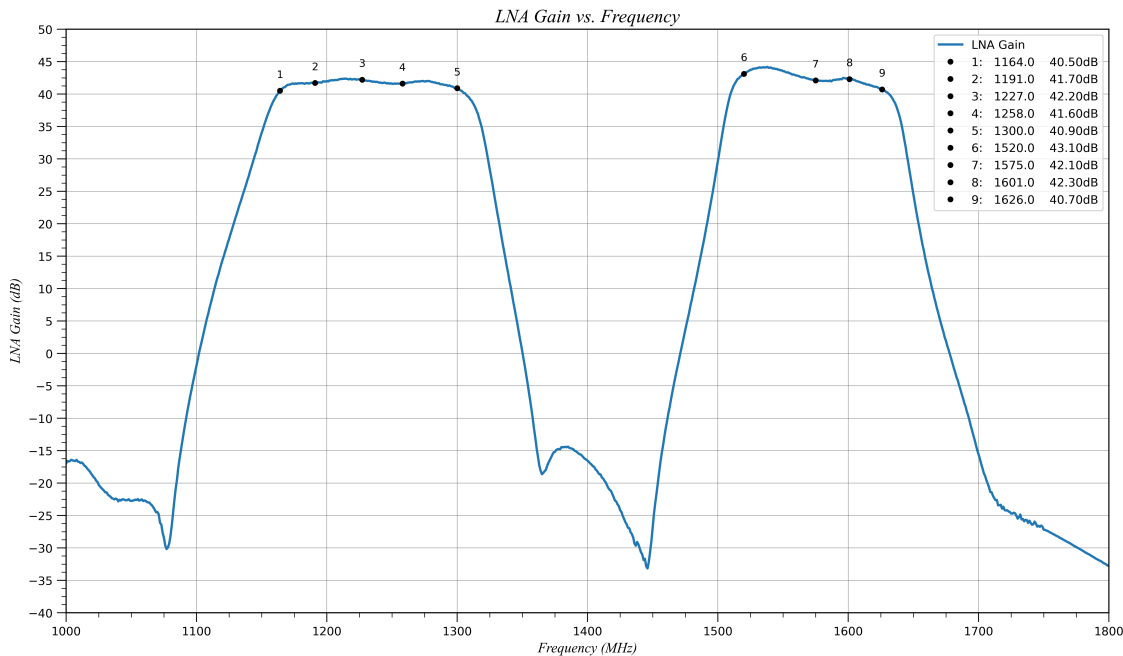
Iridium Band



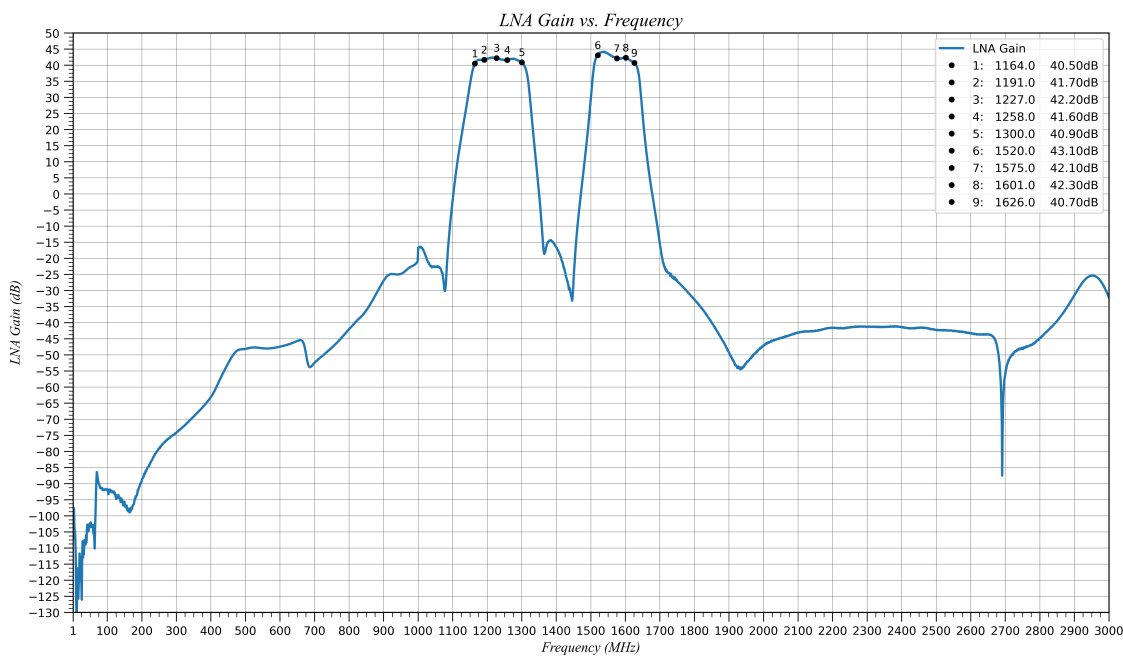
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Conducted Frequency Response, Narrow



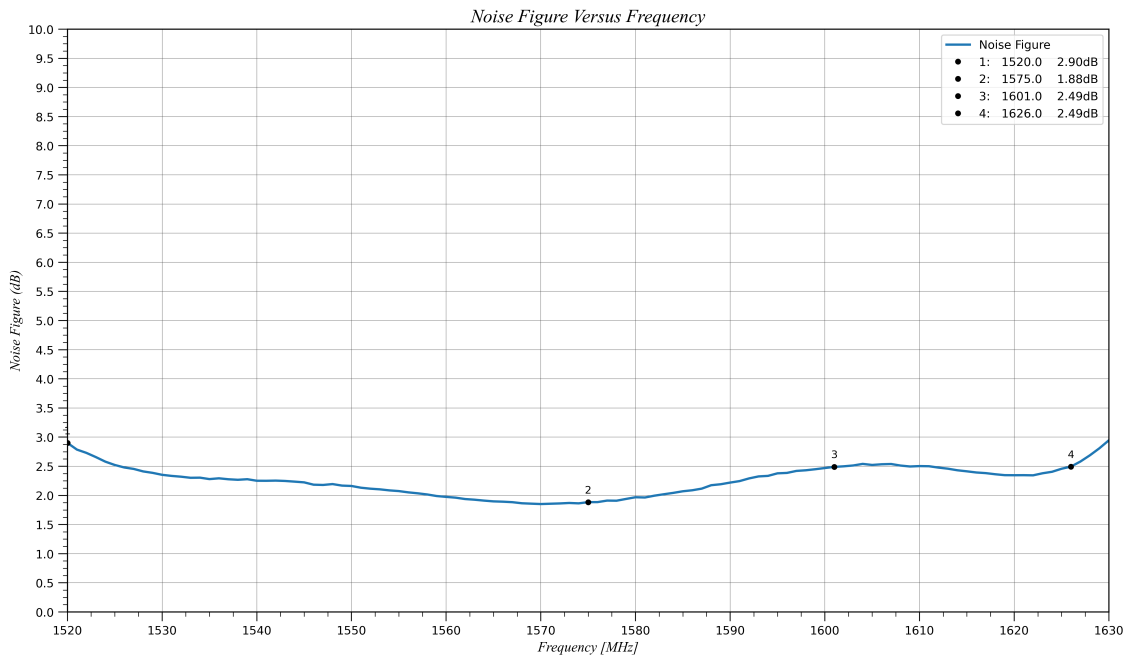
Conducted Frequency Response, Wide



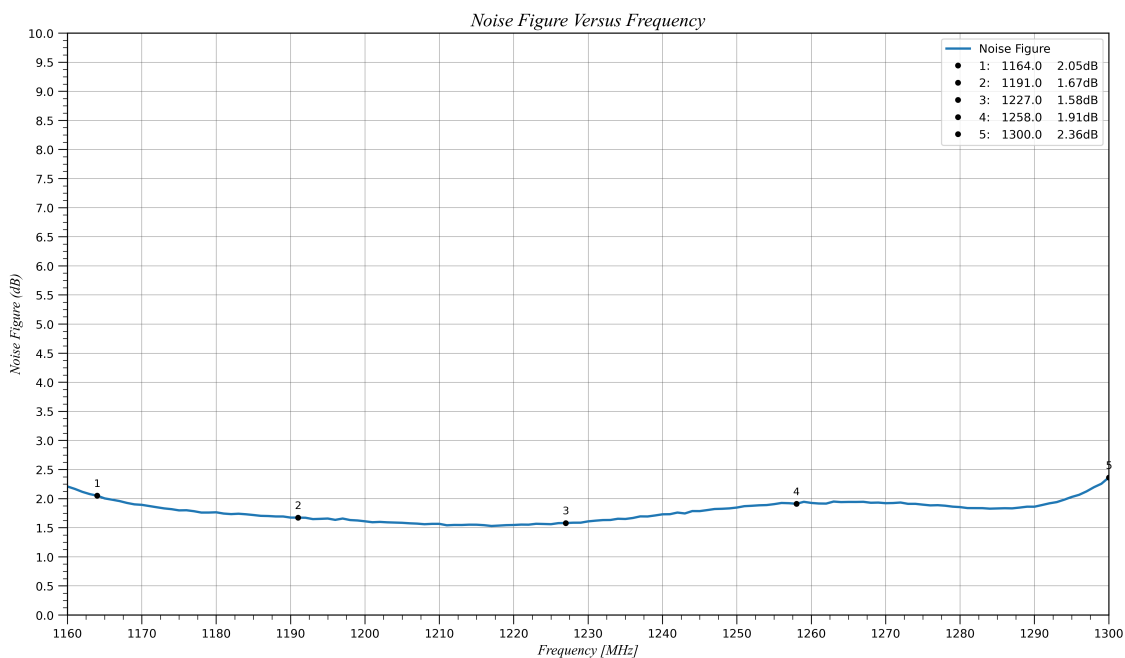
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Noise Figure, Upper L-Band and Iridium



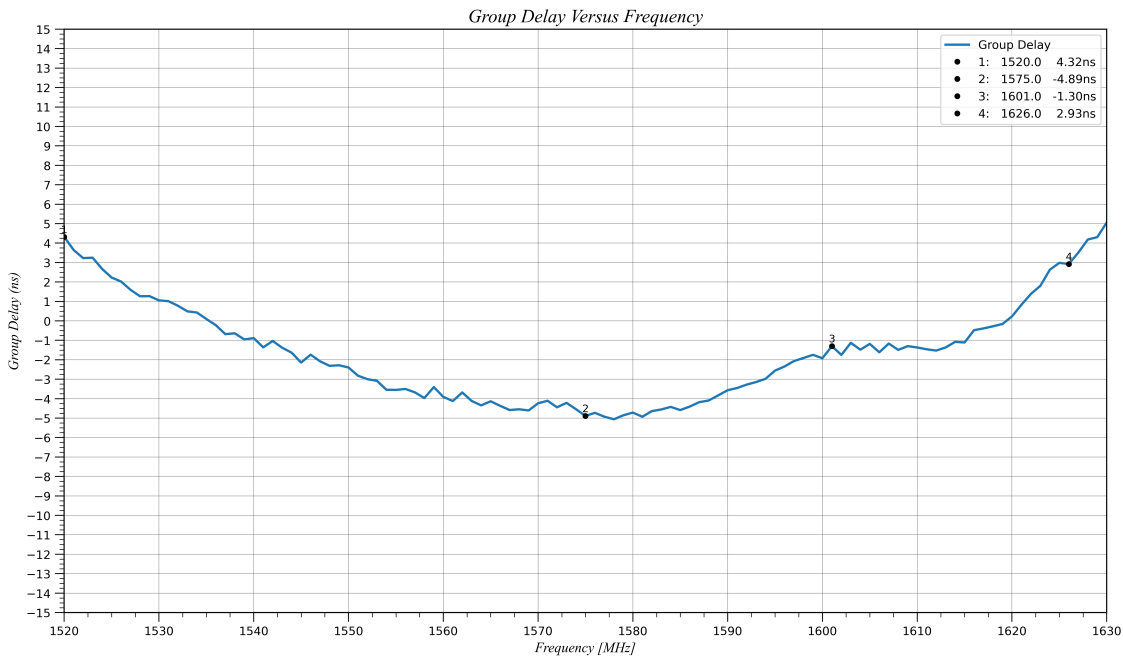
Noise Figure, Lower and Middle L-Band



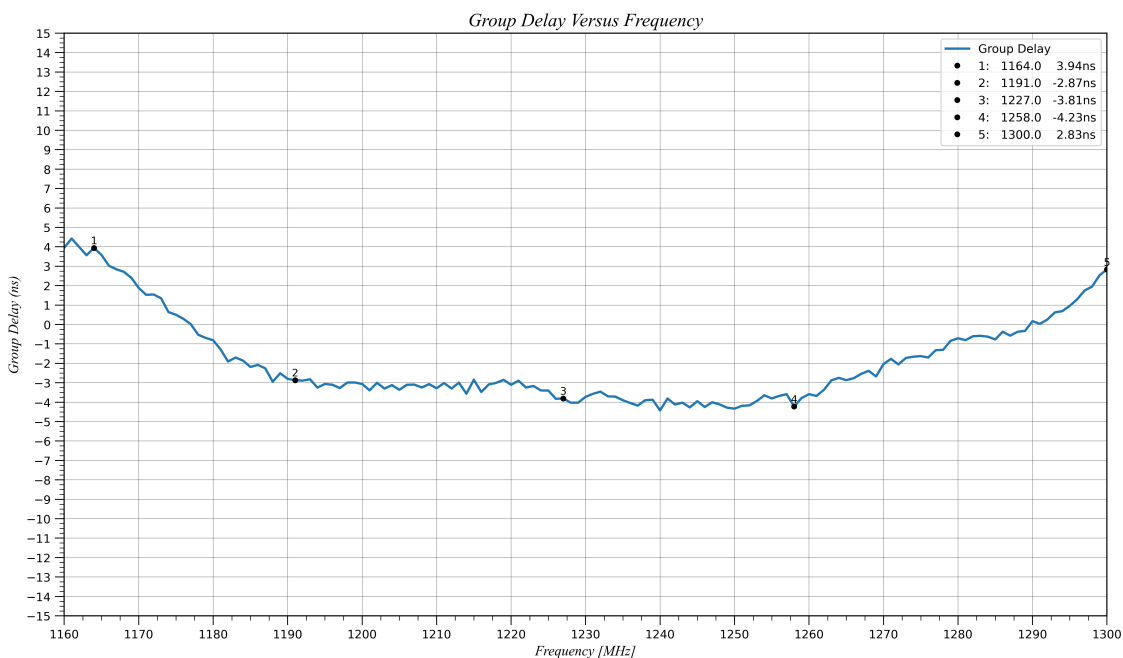
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Group Delay Variation for Upper L-Band and Iridium



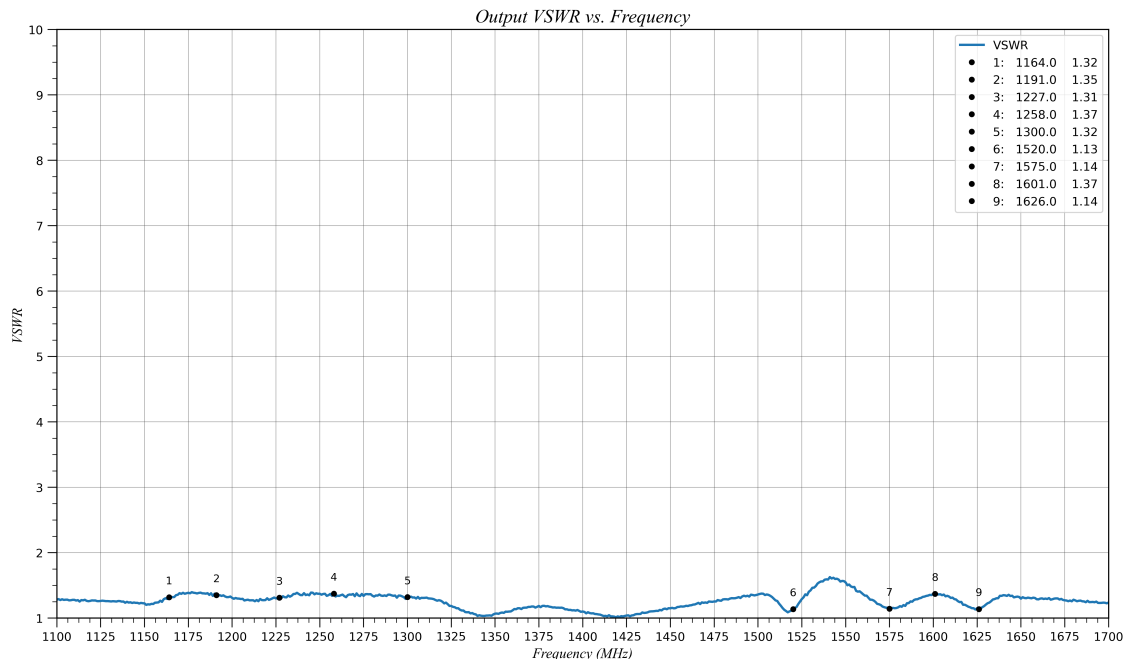
Group Delay Variation for Lower and Middle L-Bands



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VSWR, All Bands



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