

General information

Antenna optimized for pentaband operation in the GSM, UMTS and NB-IoT systems. This antenna is made from a different material than the standard version *OnBoard SMD GSM/NB-IoT (PRO-OB-572)*, which results in a cheaper antenna with lower performance.

The *OnBoard SMD GSM/NB-IoT - Low cost (PRO-OB-585)* is a ground plane dependent antenna mounted directly on the PCB of a device, by SMT.

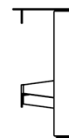
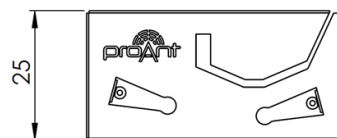
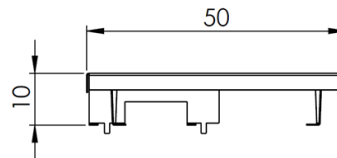


Technical data

Frequency	791 - 960 MHz, 1710 - 2170 MHz
Impedance	50 Ω
Return loss*	< -5.8 dB, NB-IoT < -5.1 dB GSM/UMTS
Total efficiency*	> -2.9 dB (51%), NB-IoT > -3.6 dB (44%), GSM/UMTS
Gain*	Max 1.9 dBi, NB-IoT Max 3.2 dBi, GSM/UMTS
Dimensions (LxWxH)	50 x 25 x 10 mm (1.969 x 0.984 x 0.394 in)
RoHS status	Compliant with EU directive 2011/65/EU and 2015/863
Shelf life	10 years
MSL	Level 1, unlimited

Applications

IoT-devices
M2M-communications
Telemetry
Automated meter reading
Alarms

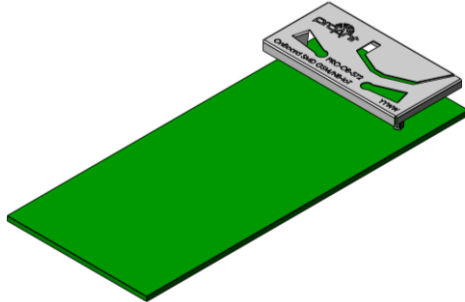


Antenna drawing. Above dimensions are given in millimeter.

*Measured on Proant evaluation board.

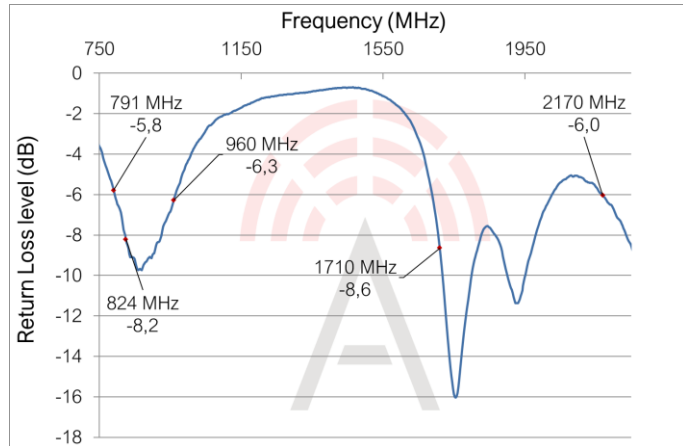
Electrical performance

Measurement setup

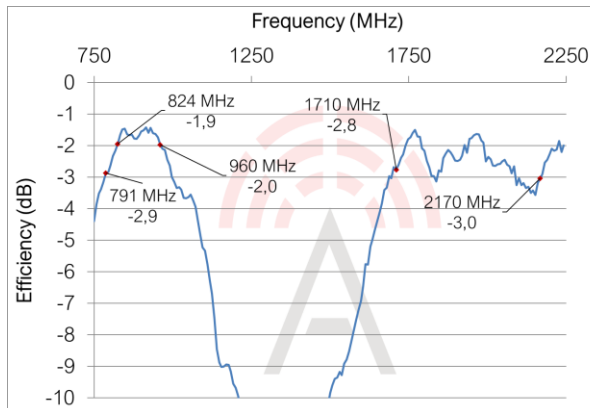


The antenna measurements were done with the *OnBoard SMD GSM/NB-IoT Low cost* evaluation board (120 x 52 mm) - measured in free space.

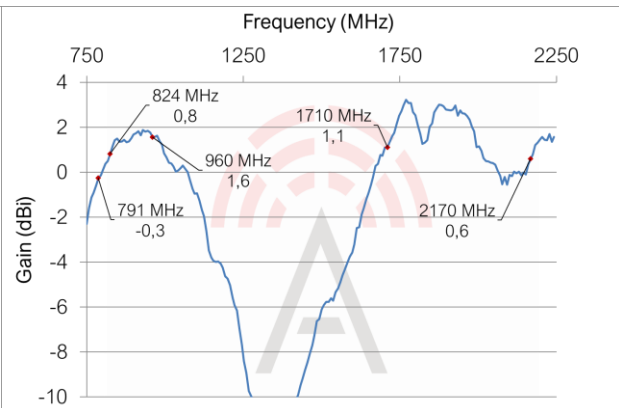
Return loss



Total radiation efficiency

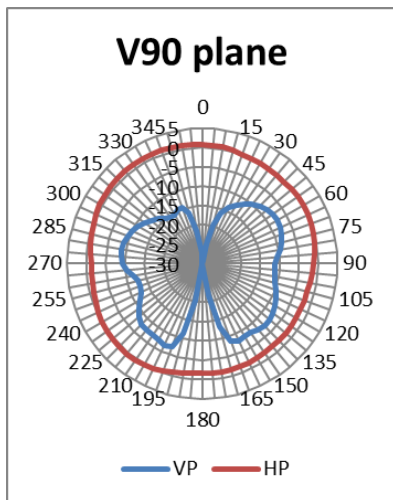
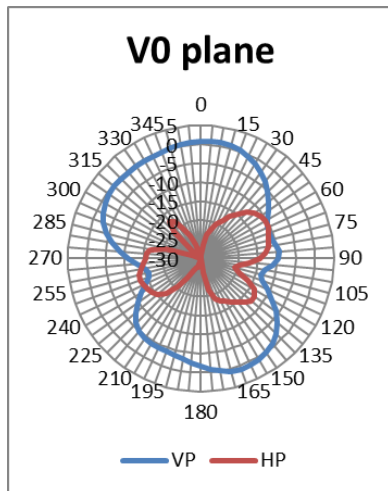
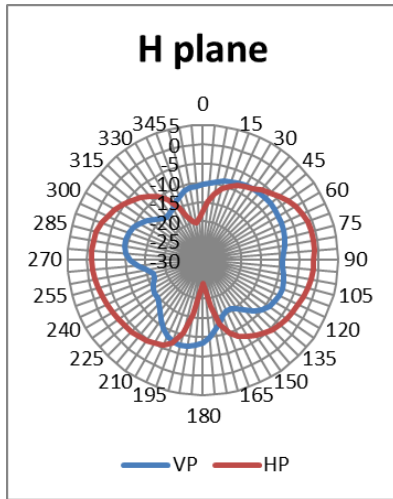


Maximum radiation gain



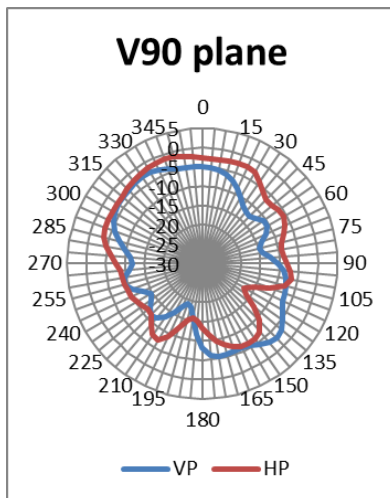
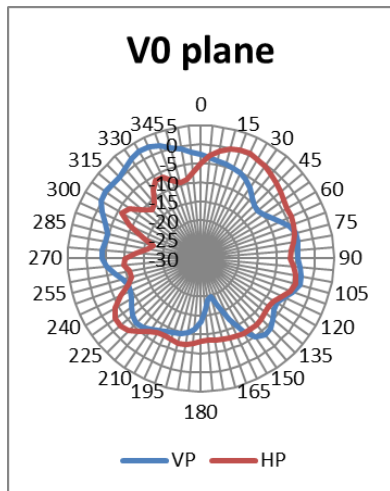
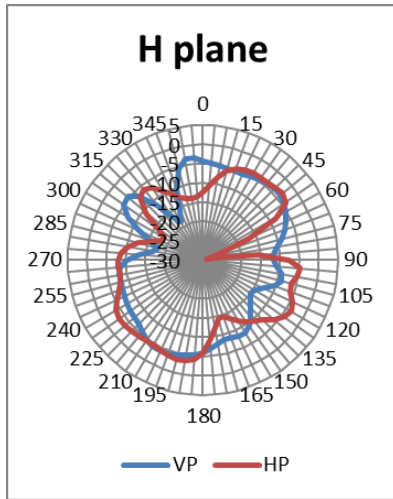
Radiation pattern, 890 MHz

Board rotation



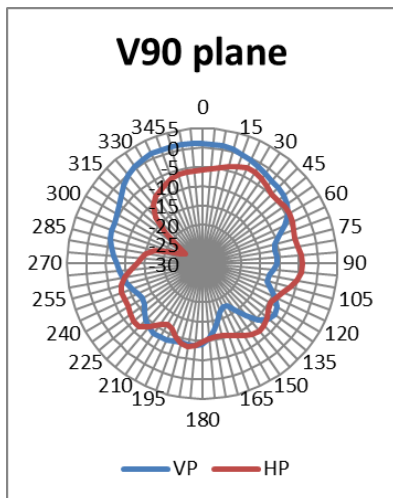
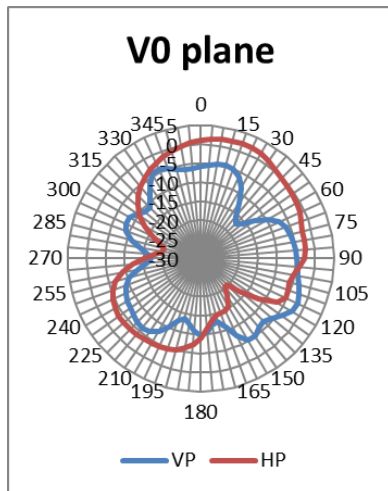
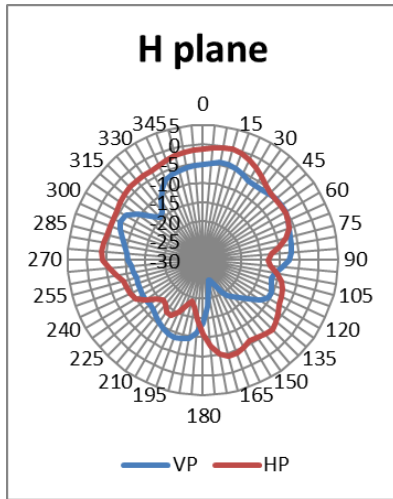
Radiation pattern, 1800 MHz

Board rotation



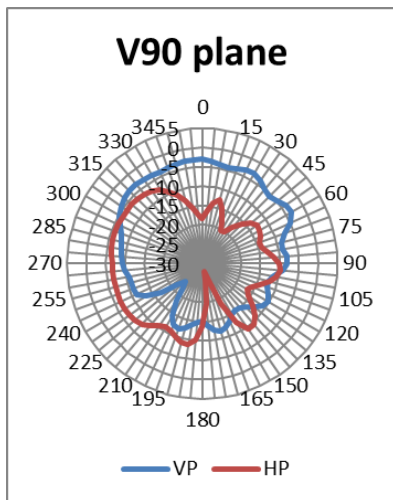
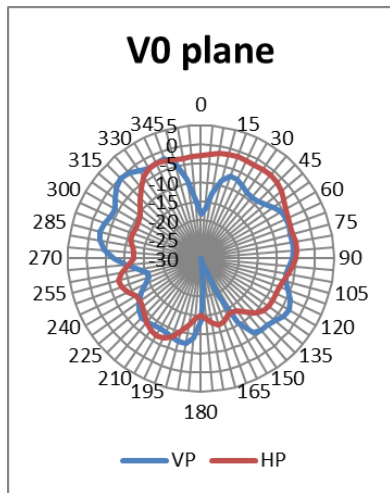
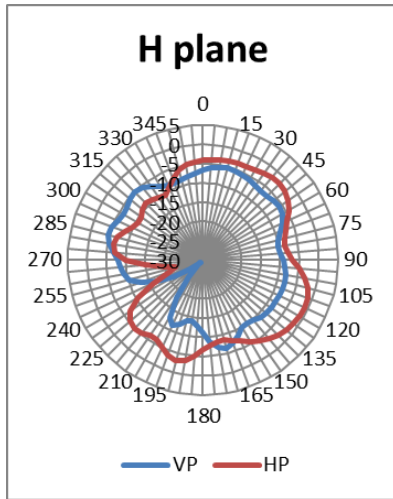
Radiation pattern, 1900 MHz

Board rotation



Radiation pattern, 2100 MHz

Board rotation



Intended applications

The antenna is optimized for pentaband operation in the GSM, UMTS and NB-IoT systems, which is defined by several frequency bands. Some of the supported bands are:

GSM/ GPRS/ EDGE	GSM 850 (824 – 894 MHz)
	GSM 900 (880 – 960 MHz)
	GSM 1800 (1710 – 1880 MHz)
	GSM 1900 (1850 – 1990 MHz)
UMTS/ LTE	Band 1 (1920 – 2170 MHz)
	Band 2 (1850 – 1990 MHz)
	Band 3 (1710 – 1880 MHz)
	Band 4 (1710 – 2155 MHz)
	Band 5 (824 – 894 MHz)
	Band 6 (830 – 883 MHz)
	Band 8 (880 – 960 MHz)
	NB-IoT
Band 20 (791 – 862 MHz)	

Ordering information

Part number	Part name	Details
PRO-OB-585	OnBoard SMD GSM/NB-IoT - Low Cost	Antenna for NB-IoT and GSM, material SPTE.

For information on sales, delivery terms and conditions and prices, please visit the Proant website (www.proant.se) for a complete list of distributors.

Proant offers consultation with design-in of the OnBoard SMD antennas. Proant have all necessary capabilities for antenna design including anechoic chamber and prototype workshop. Please send your requests to info@proant.se.

Disclaimer

The information given in this application note shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Proant AB hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.