C2R Module
13.56 MHz
External Antennas Specification

V1.2

2026-03-26

ECCEL TECHNOLOGY LTD
e-mail: sales@eccel.co.uk

Description

Antenna type	PCB track loop
Manufacturer	Eccel Technology Limited 16B Fir Tree Lane, Groby, LE6 0FH Leicester, Great Britain
Gain	N/A
Frequency of operation	13.553 - 13.567MHz 13.56MHz center frequency
Type of modulation	100% ASK
Channels, Bandwidth, Spacing	N/A

The antenna is made from FR4 material.

The connector is a standard u.FL, I-PEX connector attached to the 1.13mm thick coaxial cable.
This connector mates with receptacles from various manufacturers, for example Molex 734120114.

PCB antenna products can be customized as per application requirements. Parameters such as the dimensions or shape of the coil or its inductance can be altered.

The antenna parameters, despite different dimensions and cable lengths, ensure compliance with standards by matching the coil inductance and cable length.

The RFID antenna was designed by Eccel Technology Limited. The antenna is an integrated part of the main electronics board and it's made from the PCB tracks.
This communication feature is implemented by magnetic induction in a very near field environment and antenna gain information is not required to be declared.

C2-RFID-ANT1356-70x70-200 v1.0

Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
Dimensions	70x70mm
Cable length	200mm

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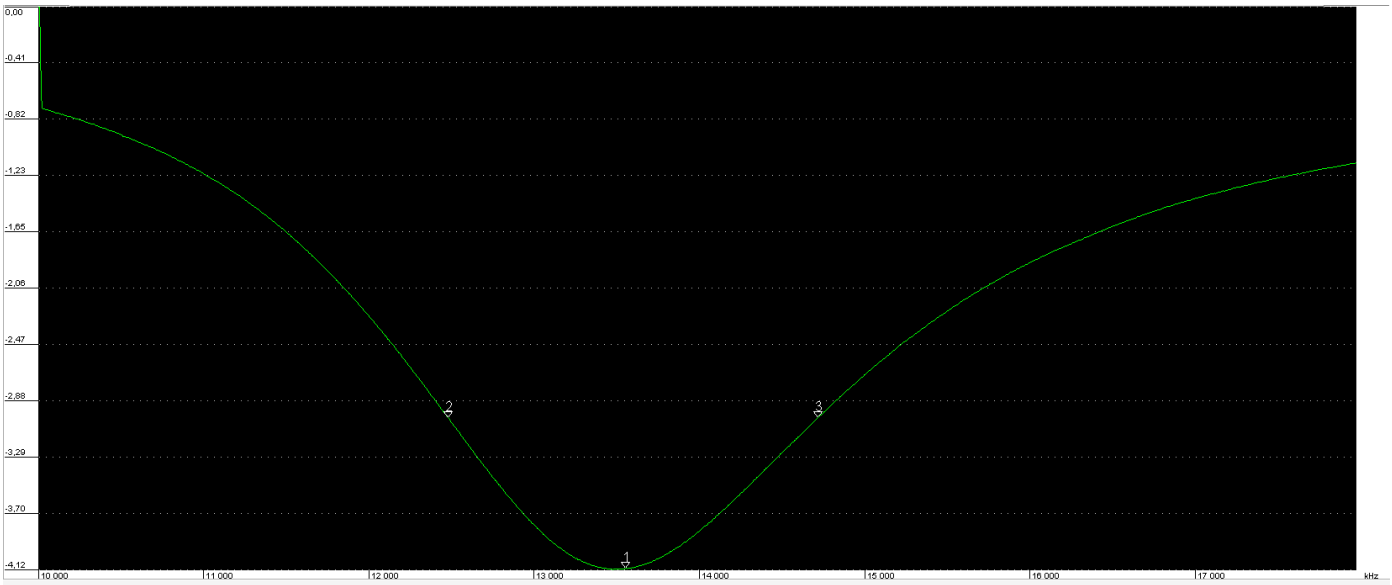
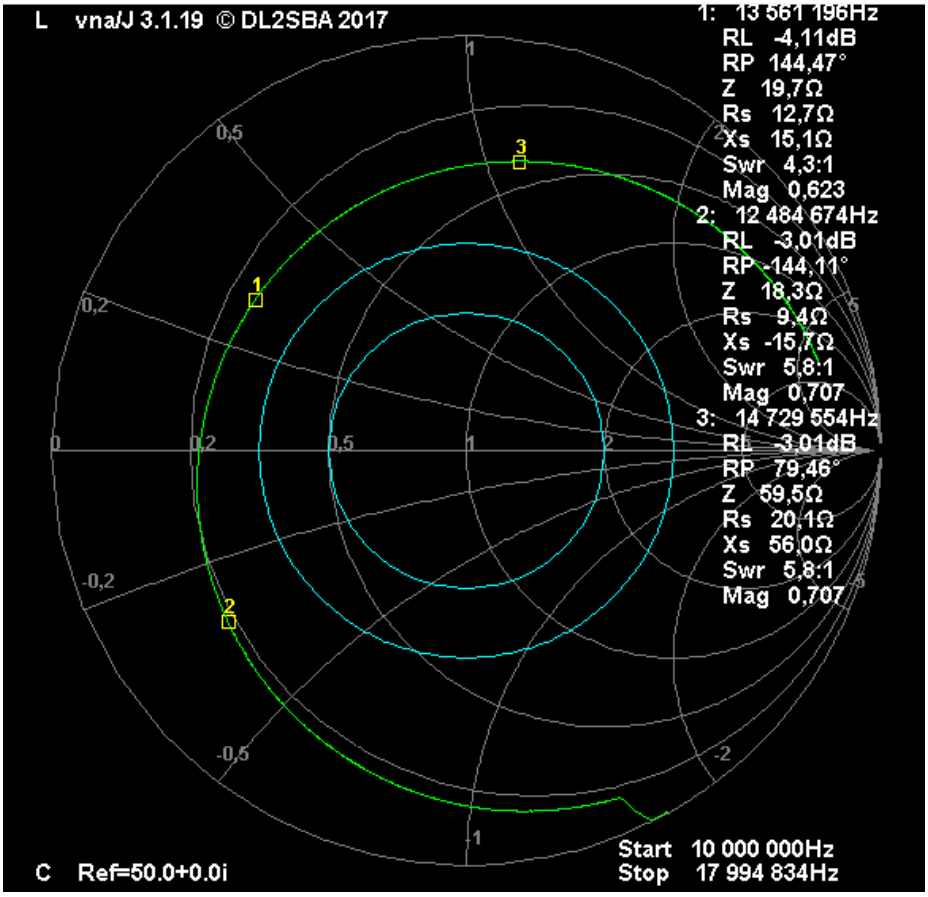
Return Loss, SWR, Smith Chart



	CzéstotliwoDæ	RL (dB)	RP (°)	|Z| (Ω)	Rs (Ω)	Xs (Ω)	Theta	SWR	
M									
1	13 561 196	-4,11	144,47	19,7	12,7	15,1	49,8	4,31:1	
Δ	1 076 522	1,10	288,58	1,4	3,3	30,7	0,0		
2	12 484 674	-3,01	-144,11	18,3	9,4	-15,7	-58,9	5,83:1	
3	14 729 554	-3,01	79,46	59,5	20,1	56,0	70,2	5,83:1	



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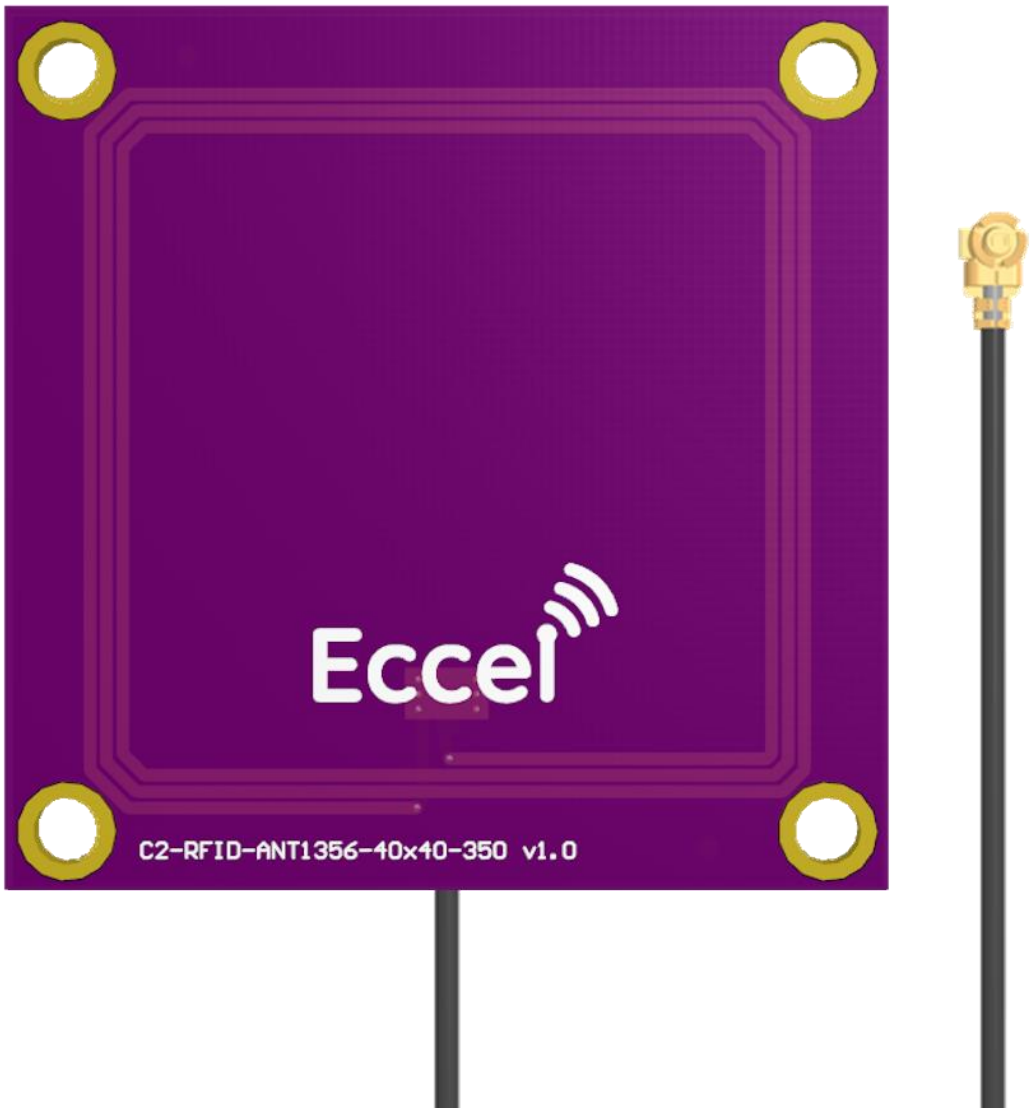
C2-RFID-ANT1356-40x40-350 v1.0



Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
Dimensions	40x40mm
Cable length	350mm

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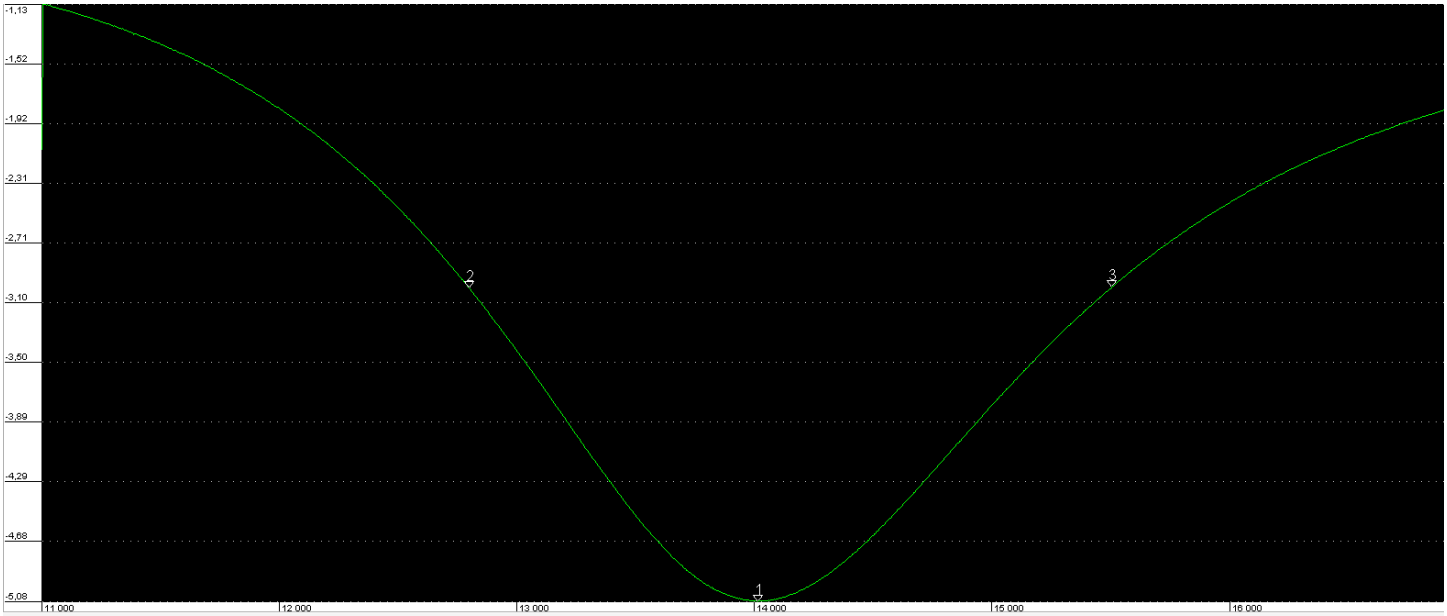
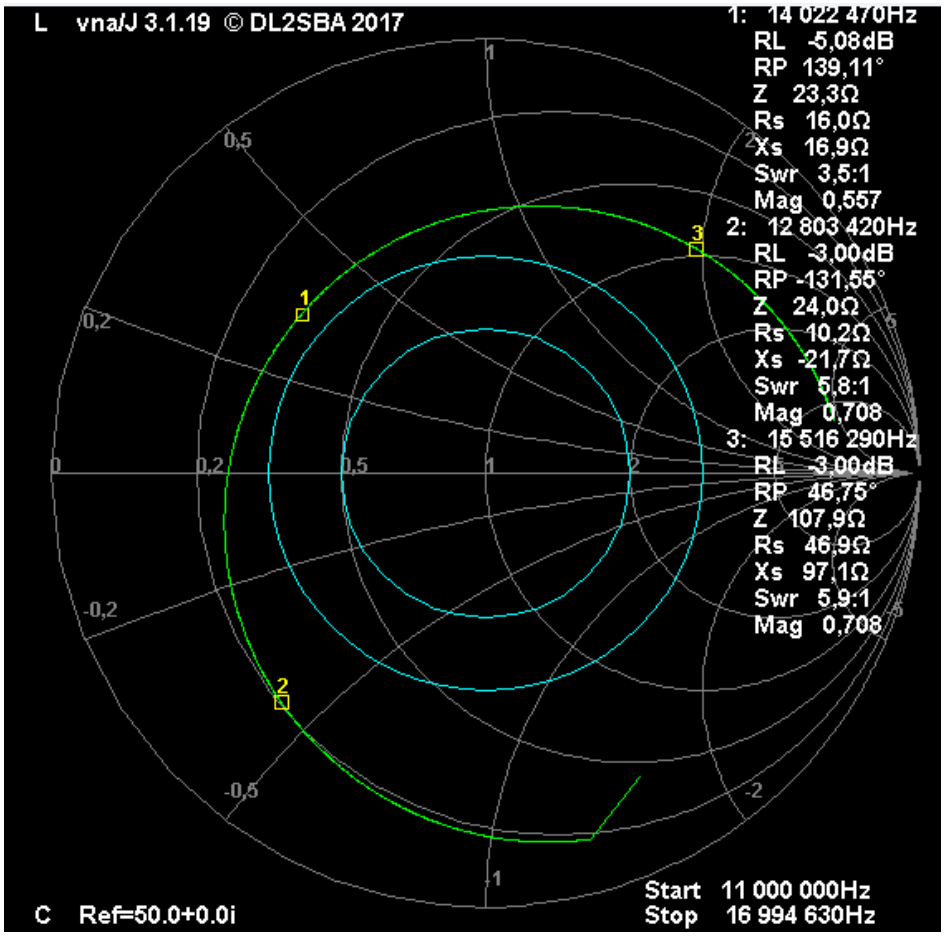
Return Loss, SWR, Smith Chart



	CzęstotliwoŒæ	RL (dB)	RP (°)	|Z| (Ω)	Rs (Ω)	Xs (Ω)	Theta	SWR
M								
1	14 022 470	-5,08	139,11	23,3	16,0	16,9	46,6	3,52:1
Δ	1 219 050	2,07	270,66	0,7	5,8	38,7	0,0	
2	12 803 420	-3,00	-131,55	24,0	10,2	-21,7	-64,8	5,84:1
3	15 516 290	-3,00	46,75	107,9	46,9	97,1	64,2	5,85:1



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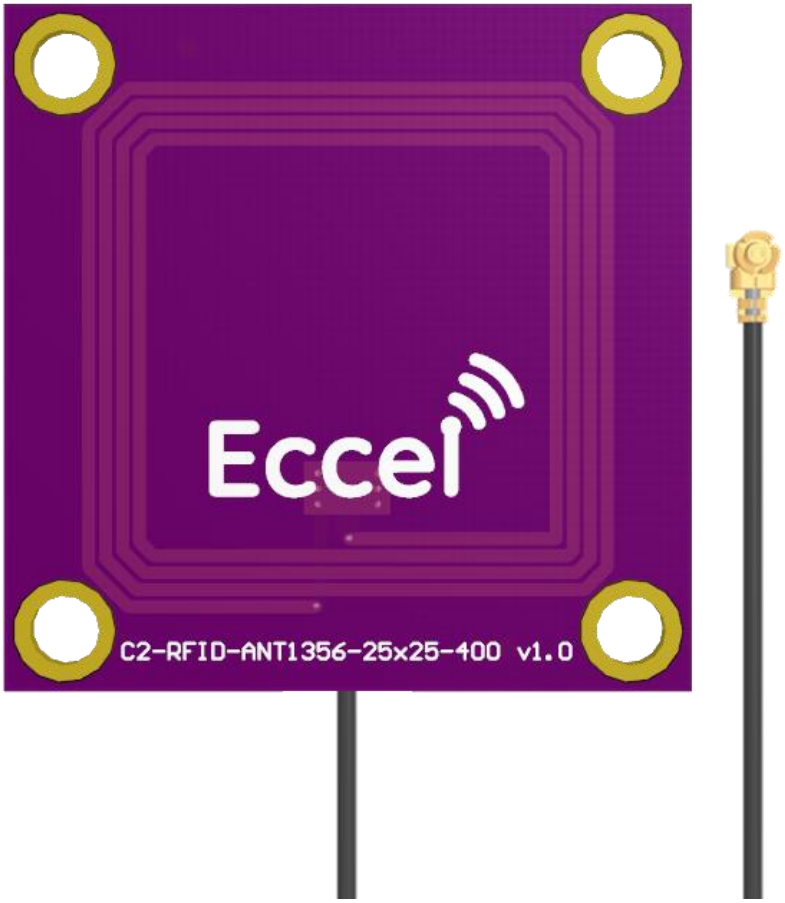
C2-RFID-ANT1356-25x25-400 v1.0



Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
Dimensions	25x25mm
Cable length	400mm

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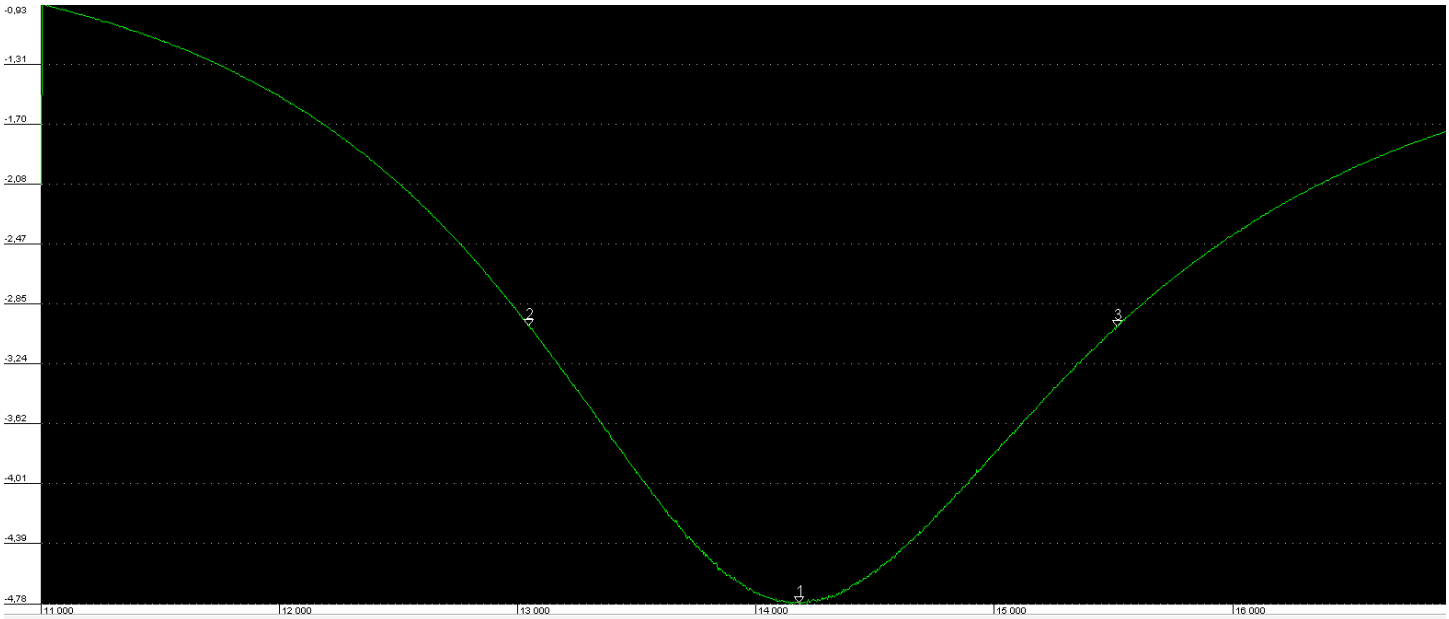
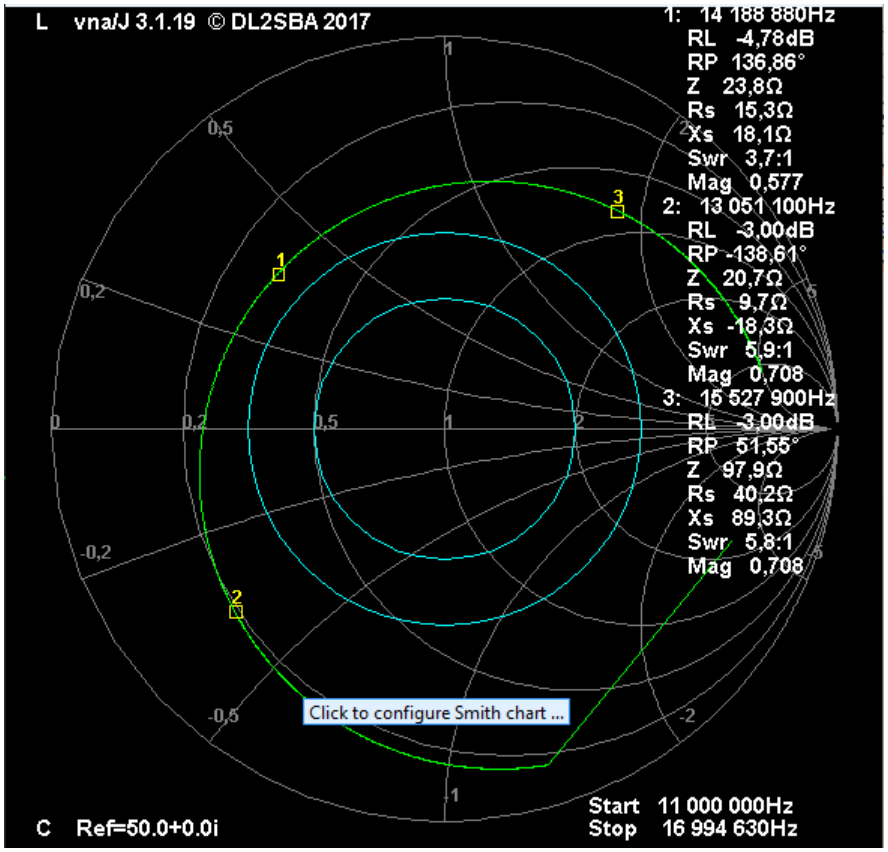
Return Loss, SWR, Smith Chart



CzéstotliwoŒæ	RL (dB)	RP (°)	|Z| (Ω)	Rs (Ω)	Xs (Ω)	Theta	SWR
M							
1	14 188 880	-4,78	136,86	23,8	15,3	18,1	49,8	3,73:1
Δ	1 137 780	1,78	275,46	3,1	5,6	36,4	0,0	
2	13 051 100	-3,00	-138,61	20,7	9,7	-18,3	-62,0	5,86:1
3	15 527 900	-3,00	51,55	97,9	40,2	89,3	65,8	5,85:1



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C2-RFID-ANT1356-10x50-500 v1.0

Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
Dimensions	10x50mm
Cable length	500mm

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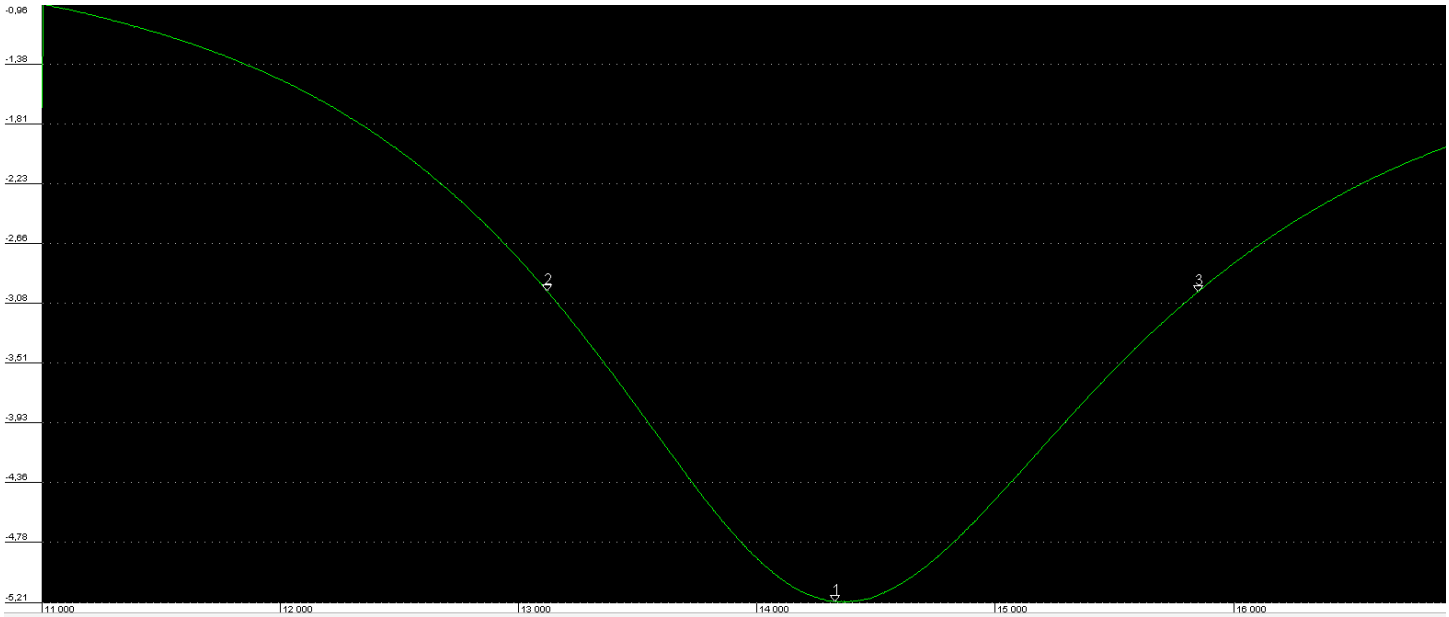
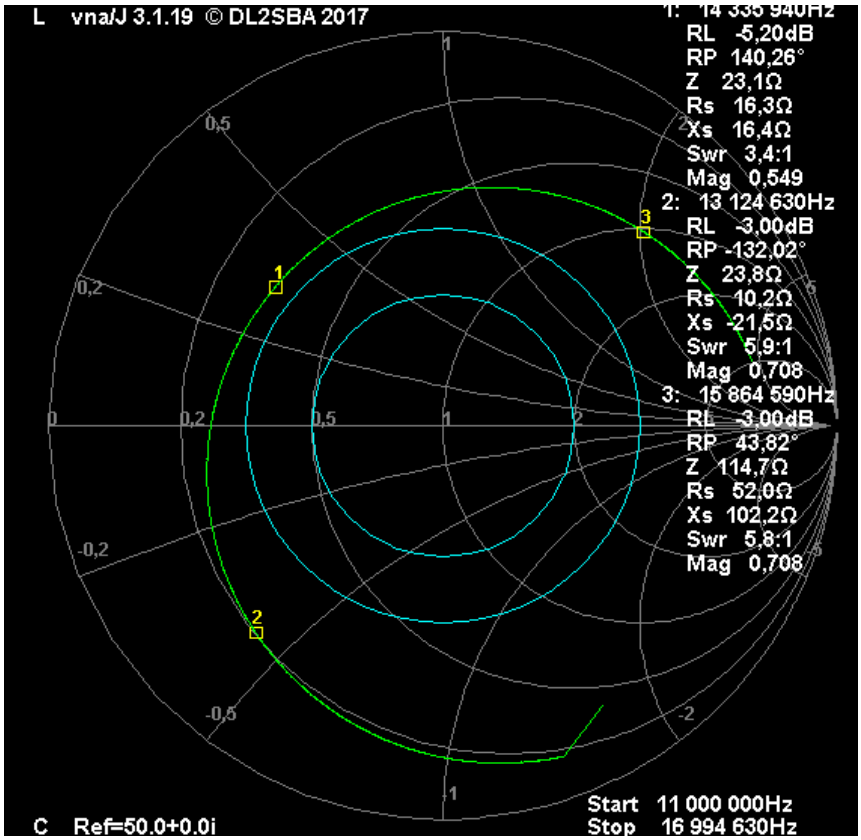
Return Loss, SWR, Smith Chart



CzêstotliwoŒæ	RL (dB)	RP (°)	|Z| (Ω)	Rs (Ω)	Xs (Ω)	Theta	SWR
M							
1	14 335 940	-5,20	140,26	23,1	16,3	16,4	45,2	3,44:1
Δ	1 211 310	2,21	272,28	0,7	6,1	37,8	0,0	
2	13 124 630	-3,00	-132,02	23,8	10,2	-21,5	-64,6	5,85:1
3	15 864 590	-3,00	43,82	114,7	52,0	102,2	63,0	5,84:1



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