



TEST REPORT

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GSM ANTENNAS COMPARISON

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SIGNATURE

A handwritten signature in black ink, appearing to read "Simone Castagnetti".

SIMONE CASTAGNETTI



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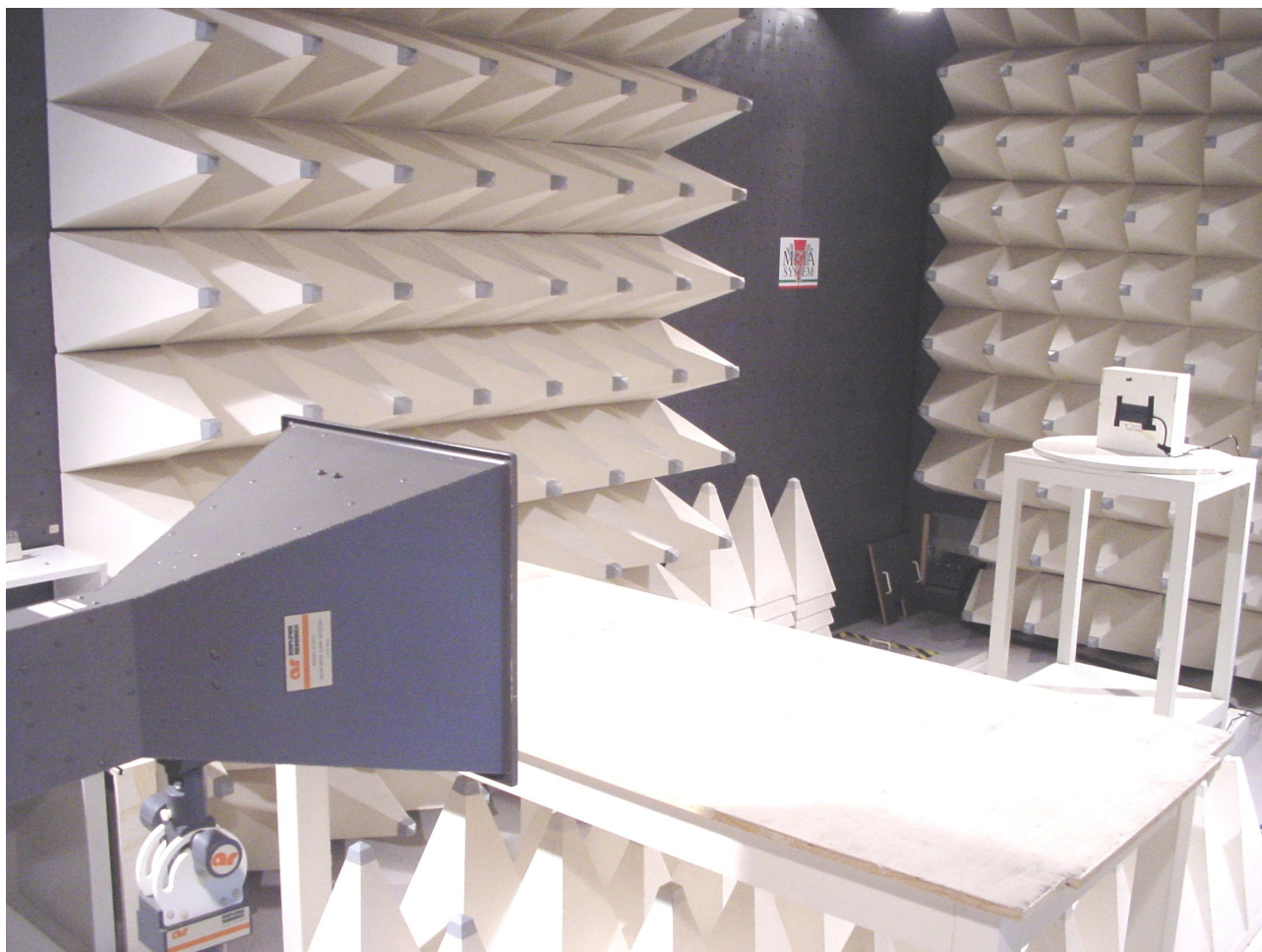
1.1. GENERAL INFORMATION

Product description	n° 1 Meta System GSM antenna, n° 2 Distar GSM antennas, n° 2 CIA GSM antennas, n° 1 Richardson Electronics GSM antenna
Serial n°	n.a.
Test type	GSM antennas comparison
	ref. Meta System
Test started	12/05/08
Test finished	12/05/08
Tested by	Simone Castagnetti

1.2. TEST EQUIPMENTS

TYPE	MODEL	META SYSTEM INTERNAL CODE
Digital multimeter	FLUKE 175	S0945
Signal generator	ROHDE & SCHWARZ SMY 02	S0845
PC	G@VI COMPUTERS	PC620
Spectrum analyzer	AGILENT E4407B	S0995
Anechoic chamber	FRANKONIA	S0939
Horn antenna	AR AT4510	S0895

1.3. TEST SET-UP

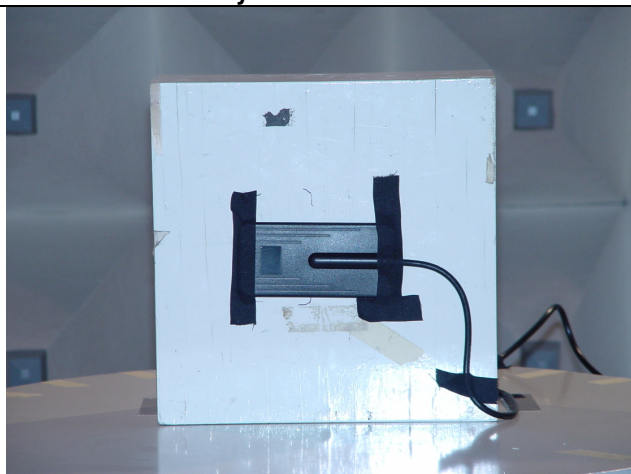


1.3.1. TEST DETAILS

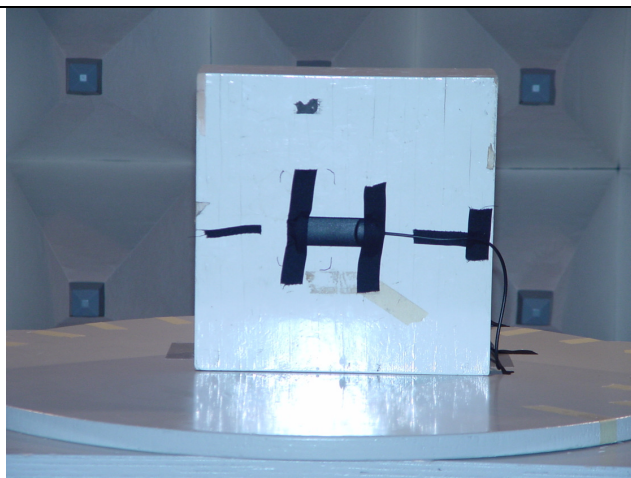
Horn Antenna



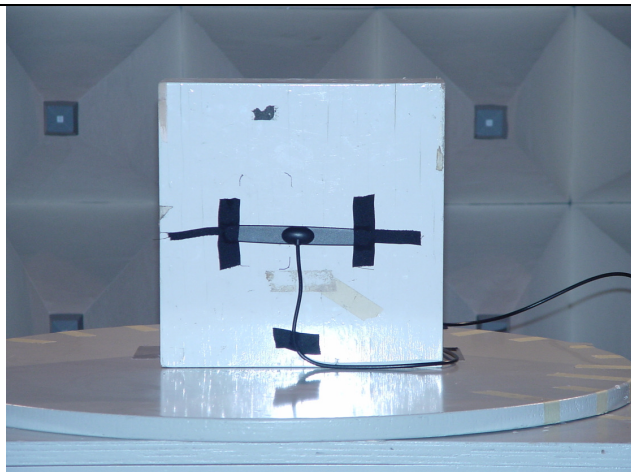
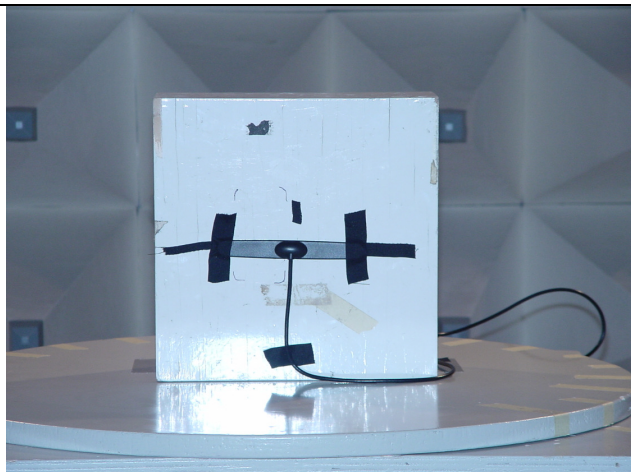
Meta System GSM Antenna



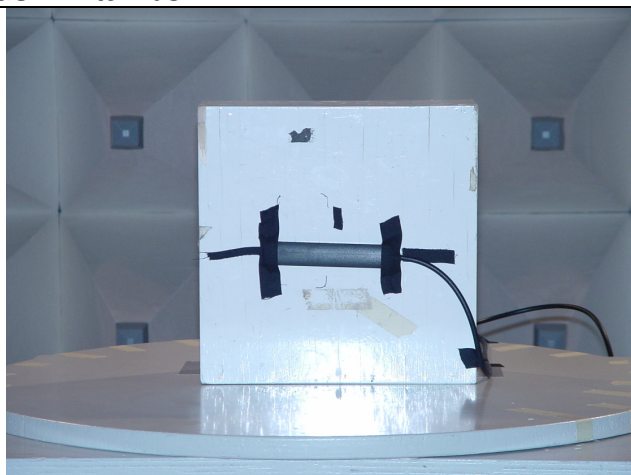
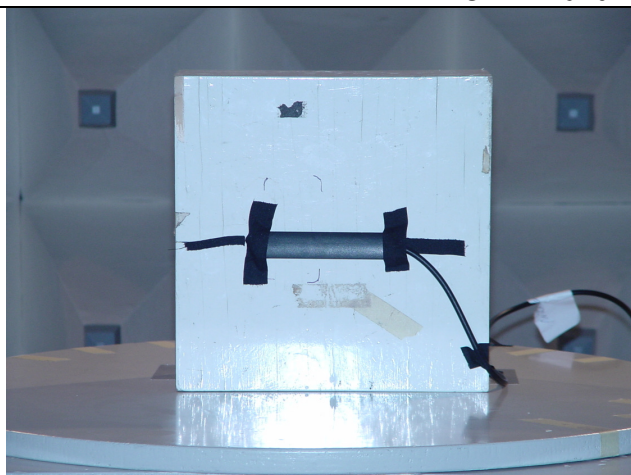
Richardson Electronics GSM Antenna



Distar n°1 and 2 GSM Antennas

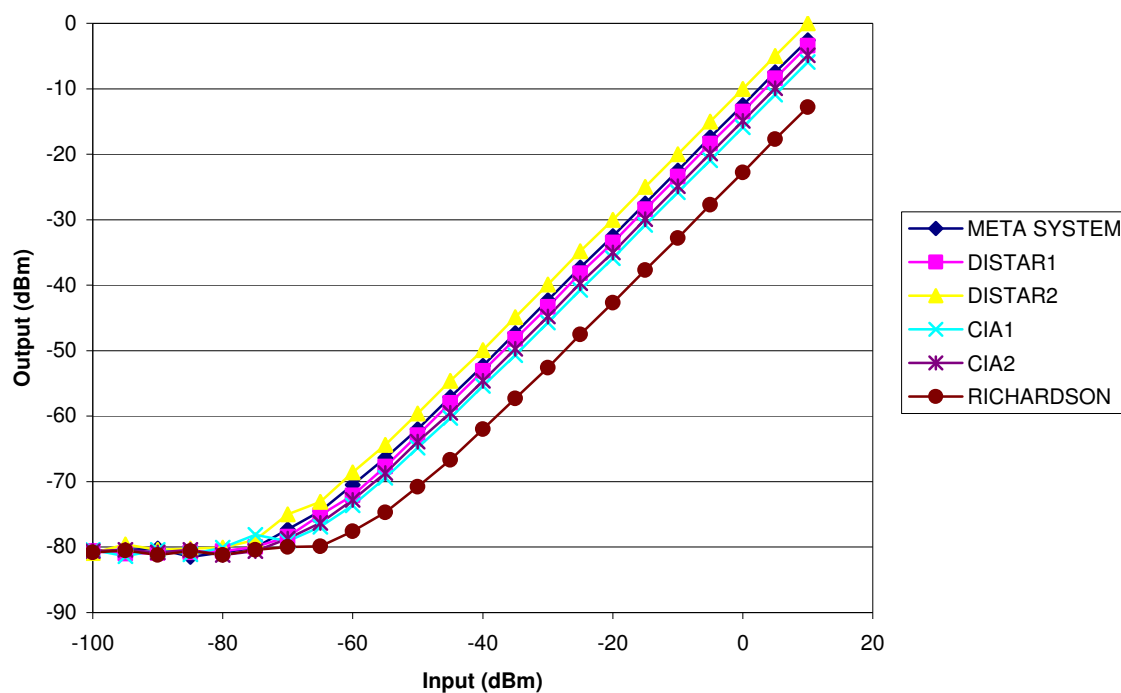


CIA n°1 and 2 GSM Antennas

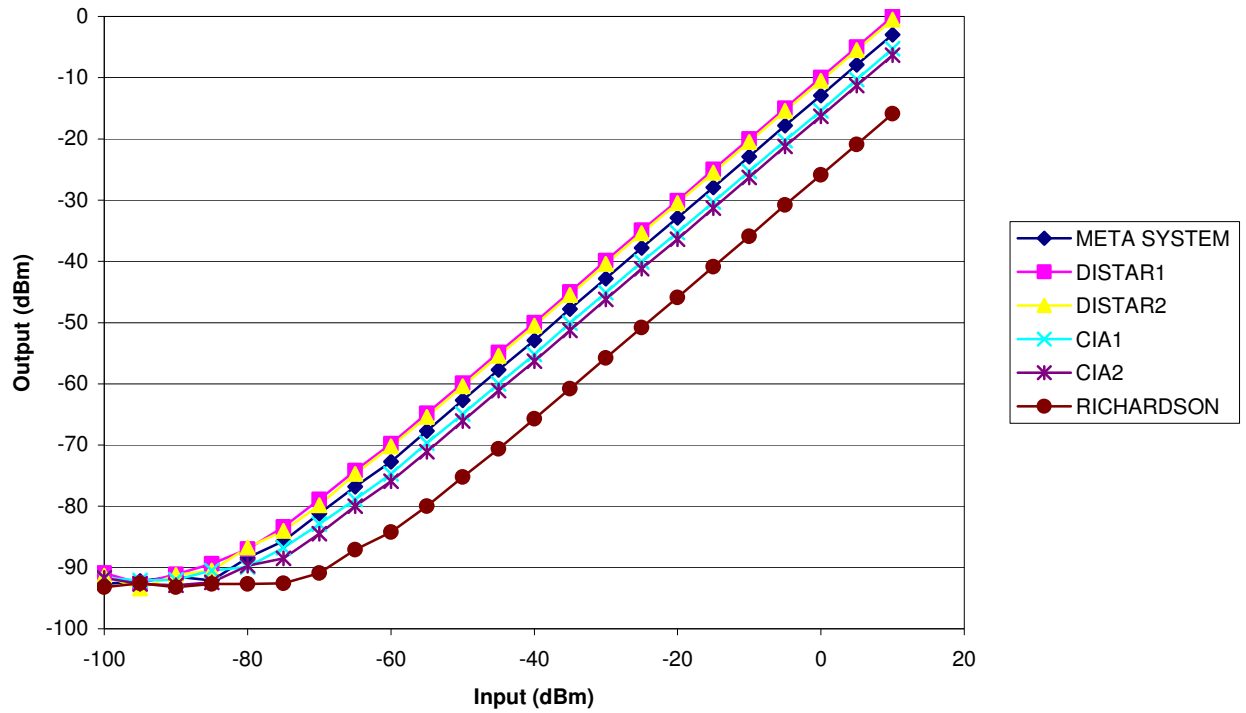


1.4. COMPARISON GRAPHS

1.4.1. GAIN GRAPH f=900MHz



1.4.2. GAIN GRAPH f=1750MHz



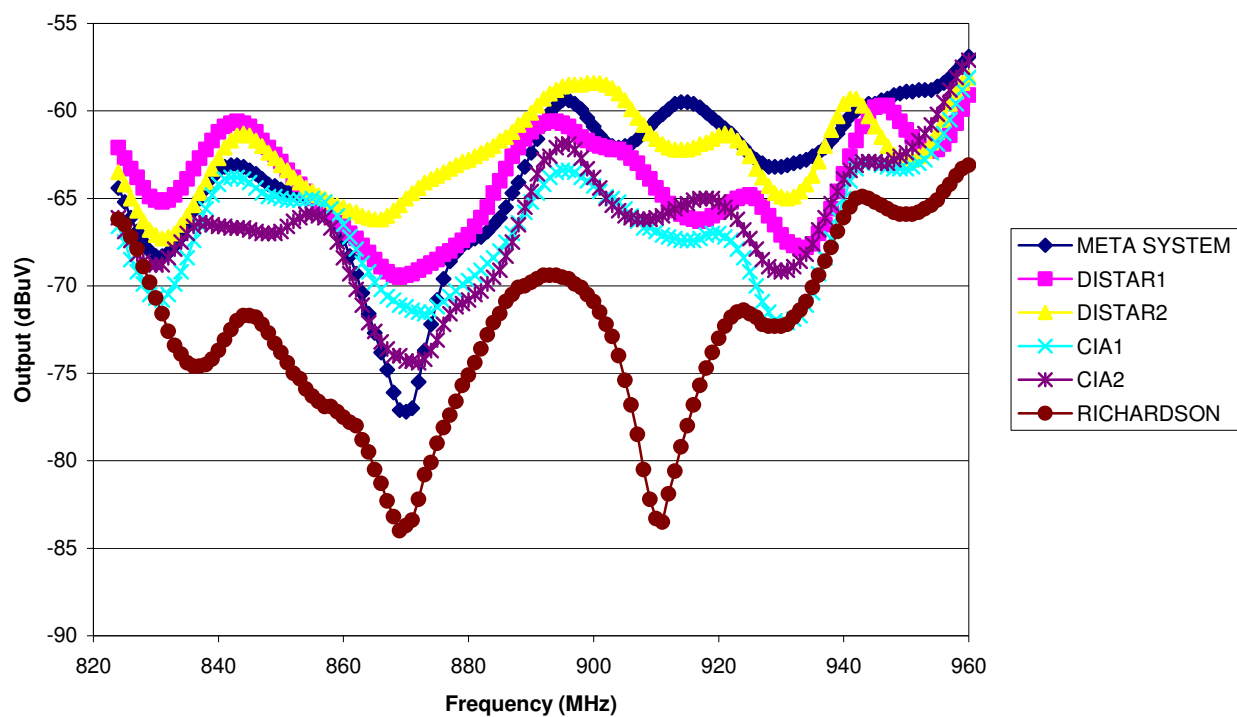


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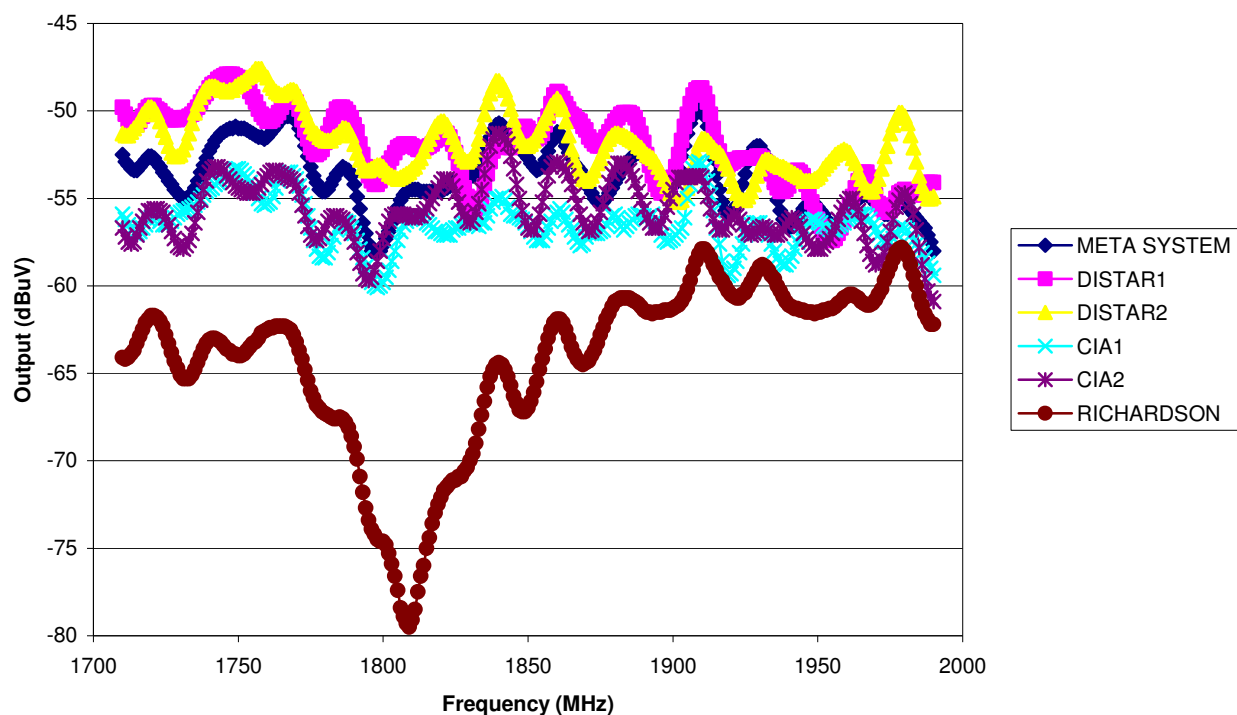
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1.4.3. FREQUENCY BAND GRAPH $f=900\text{MHz}$



1.4.4. FREQUENCY BAND GRAPH $f=1750\text{MHz}$



1.5. TEST RESULTS

Richardson Electronics antenna is the worst between those tested.

Meta System and *Distar* antenna are comparable but *Distar* antennas are slightly better.