



Complex Media Institute
Advanced Electromagnetic Laboratory

Microwave Laboratory
Complex Media Institute

Complex Media Institute, Kheradmand St., Karim Khan Zand Blvd., Tehran, Iran
Postal Code : 1583773311

Report of Electromagnetic Shielding Properties Measurement

Page 1 of 7

The instrument identified below has been individually calibrated in compliance with the following standard:
ASTM D4935

Environment: Laboratory was maintained in a temperature-controlled environment with ambient conditions from 19° to 25° C, relative humidity less than 60%.

Test Type: EM Shielding Properties Measurement

Test Date: January 07, 2024

DUT Identification:

Manufacturer: Mr. Ghomri (Pars shield Co.)

Contract No.: 1332-1402

Address

Model: Piece of cloth

Sample Number/ID: 1332-1402-10-S-01(Copper 12) to 1332-1402-10-S -02(Copper 17),
1332-1402-10-S -03(Silver), 1332-1402-10-S -04(Steel)

Device Type: cloth

Sample Characteristics: sheet

Comments: Measurement of Shielding Effectiveness in Frequency Range: 1.2–2.45 GHz

Main Equipment Used:

Make	Model	Name	Calibration Date
Agilent	N5222A	PNA Series Network Analyzer, 10MHz – 26.5GHz	Aug-2025
A-INFOMW	(510) WCAN	Standard Waveguide	
Rosenberger	03CK10A	RPC-3.5 Calibration Kit	

Technical Manager
Nasrin Bahari

Head of the Lab.
Seyed Bagher Noorbakhsh

Attested and Issued on January 31, 2024

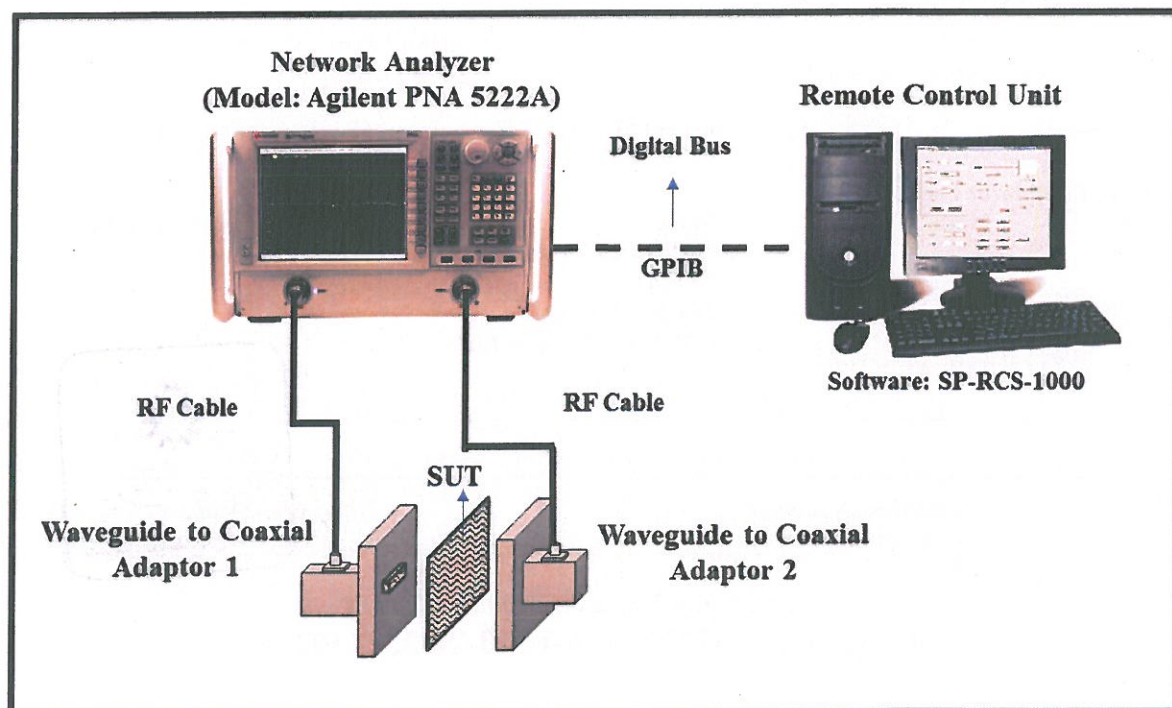
Certificate No. : CMI-LQS-F510- S13321402_62

Q.C.	 Complex Media Institute Advanced Electromagnetic Laboratory Microwave Laboratory Complex Media Institute Complex Media Institute, Kheradmand St., Karim Khan Zand Blvd., Tehran, Iran Postal Code : 1583773311	Page: 2 of 9 S13111402_51
		Test Date: August 16-17, 19 2024
Test Report for EM Shielding Properties Measurement Manufactured: Mr. Ghomri (Pars shield Co.) Sample No: 4 Contract No: 1332-1402		

MEASUREMENT CONDITION

NUM	PARAMETER	VALUES	NUM	PARAMETER	VALUES
1	Transmitted Power	0dBm	4	Frequency Band	1.2 GHz -2.45GHz
2	Time Domain Gating	Not Used	5	Frequency Point	1601
3	Length of Waveguide	Not Used			

TEST SETUP:



Q.C.	Complex Media Institute Advanced Electromagnetic Laboratory Microwave Laboratory Complex Media Institute Complex Media Institute, Kheradmand St., Karim Khan Zand Blvd., Tehran, Iran Postal Code : 1583773311	Page: 3 of 9 S13111402_51
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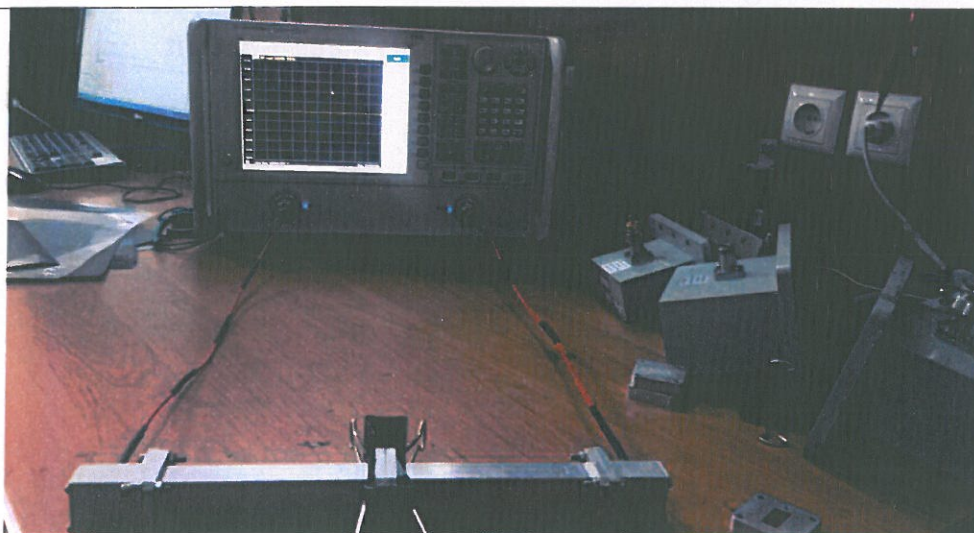


Fig. 1: Test Setup

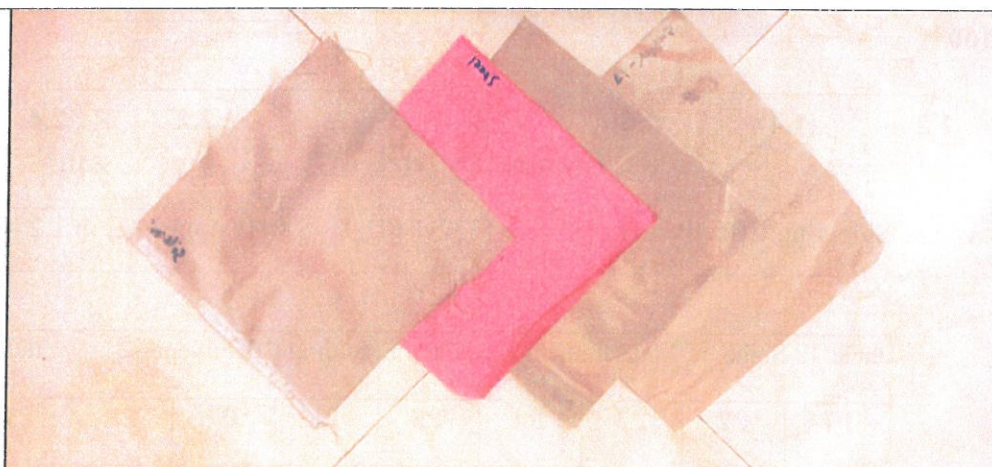


Fig. 2: Samples Under Test of 1332-1402-10-S-01(Copper 12) to 1332-1402-10-S -02(Copper 17), 1332-1402-10-S -03(Silver), 1332-1402-10-S -04(Steel)

Q.C.	 Complex Media Institute Advanced Electromagnetic Laboratory Microwave Laboratory Complex Media Institute Complex Media Institute, Kheradmand St., Karim Khan Zand Blvd., Tehran, Iran Postal Code : 1583773311	Page: 4 of 9 S13111402_51
Test Report for EM Shielding Properties Measurement Manufactured: Mr. Ghomri (Pars shield Co.) Sample No: 4 Contract No: 1332-1402		Test Date: August 16-17, 19 2024

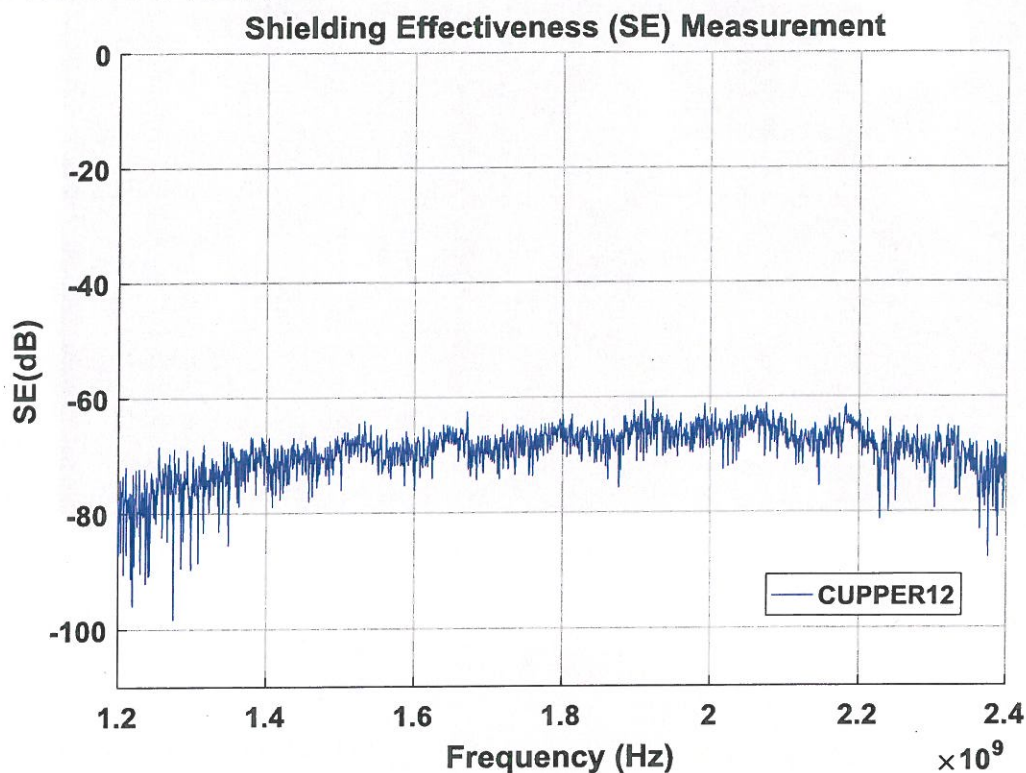


Fig. 3: The Shielding Effectiveness (SE) of 1332-1402-10-S-01(Cupper 12) in 1.2 to 2.4 GHz

Table. 1: Some of Measurement Results of Shielding Effectiveness shown in Figure 3										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Frequency(GHz)	1.2	1.26	1.32	1.38	1.44	1.5	1.56	1.62	1.68	1.74
S21 (dB)	-77.69	-76.31	-71.86	-72.72	-67.01	-66.73	-66.53	-70.28	-67.89	-69.44
	P10	P11	P13	P14	P15	P16	P17	P18	P19	P20
Frequency(GHz)	1.86	1.92	1.98	2.04	2.1	2.16	2.2	2.28	2.34	2.4
S21 (dB)	-68.03	-65.76	-66.29	-64.19	-65.48	-67.61	-66.03	-67.28	-65.76	-67.78

Q.C.	 Complex Media Institute Advanced Electromagnetic Laboratory Microwave Laboratory Complex Media Institute Complex Media Institute, Kheradmand St., Karim Khan Zand Blvd., Tehran, Iran Postal Code : 1583773311	Page: 5 of 9 S13111402_51
		Test Date: August 16-17, 19 2024
Test Report for EM Shielding Properties Measurement Manufactured: Mr. Ghomri (Pars shield Co.) Sample No: 4 Contract No: 1332-1402		

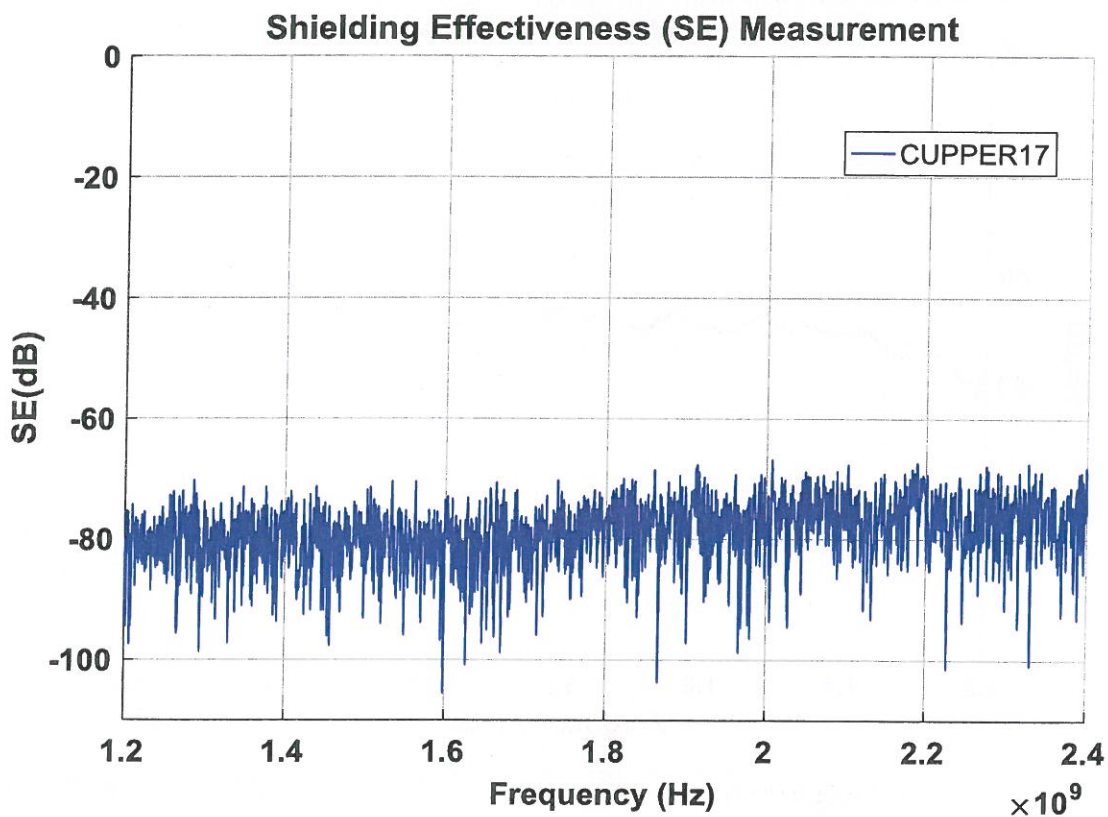


Fig. 4: The Shielding Effectiveness (SE) of 1332-1402-10-S-02(Cupper 17) in 1.2 to 2.4 GHz

Table. 2: Some of Measurement Results of Shielding Effectiveness shown in Figure 4

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Frequency(GHz)	1.2	1.26	1.32	1.38	1.44	1.5	1.56	1.62	1.68	1.74
S21 (dB)	-82.53	-72.08	-79.42	-80.58	-81.60	-84.54	-86.26	-80.27	-78.88	-84.41
	P10	P11	P13	P14	P15	P16	P17	P18	P19	P20
Frequency(GHz)	1.86	1.92	1.98	2.04	2.1	2.16	2.2	2.28	2.34	2.4
S21 (dB)	-74.48	-82.65	-96.47	-76.56	-76.55	-77.32	-74.07	-72.86	-72.81	-75.85

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		Test Date: August 16-17, 19 2024
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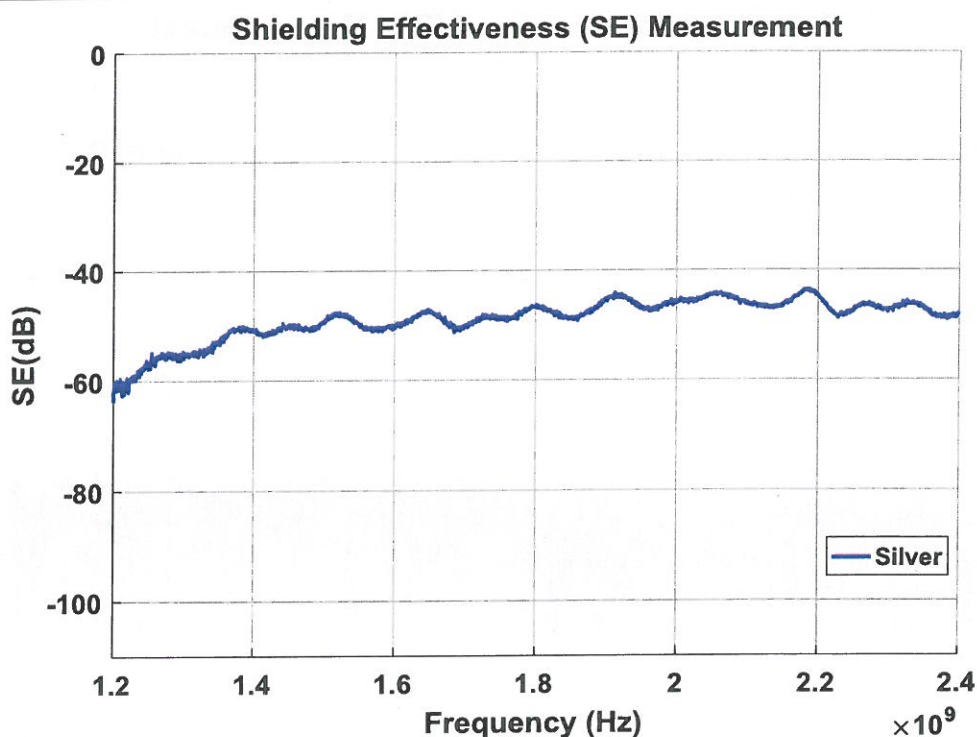


Fig. 5: The Shielding Effectiveness (SE) of 1332-1402-10-S-03(Silver) in 1.2 to 2.4 GHz

Table. 3: Some of Measurement Results of Shielding Effectiveness shown in Figure 5

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Frequency(GHz)	1.2	1.26	1.32	1.38	1.44	1.5	1.56	1.62	1.68	1.74
S21 (dB)	-62.00	-57.28	-55.25	-50.26	-50.97	-49.60	-50.31	-49.27	-49.59	-48.50
	P10	P11	P13	P14	P15	P16	P17	P18	P19	P20
Frequency(GHz)	1.86	1.92	1.98	2.04	2.1	2.16	2.22	2.28	2.34	2.4
S21 (dB)	-48.56	-45.09	-46.63	-45.41	-46.42	-46.04	-47.97	-46.69	-46.47	-48.37

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		Test Date: August 16-17, 19 2024
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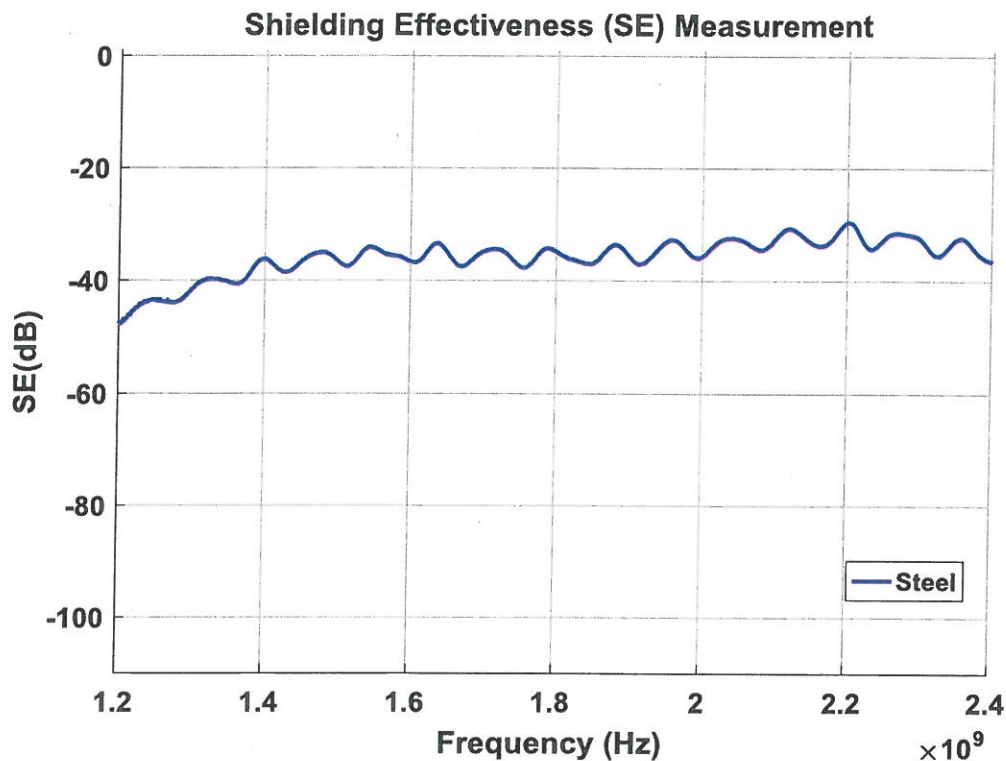


Fig. 6: The Shielding Effectiveness (SE) of 1332-1402-10-S-04(Steel) in 1.2 to 2.4 GHz

Table. 4: Some of Measurement Results of Shielding Effectiveness shown in Figure 6

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Frequency(GHz)	1.2	1.26	1.32	1.38	1.44	1.5	1.56	1.62	1.68	1.74
S21 (dB)	-47.78	-43.87	-39.83	-38.71	-37.95	-36.76	-35.20	-35.48	-36.92	-36.52
	P10	P11	P13	P14	P15	P16	P17	P18	P19	P20
Frequency(GHz)	1.86	1.92	1.98	2.04	2.1	2.16	2.22	2.28	2.34	2.4
S21 (dB)	-36.03	-37.04	-35.11	-32.58	-32.70	-33.90	-32.58	-31.83	-34.24	-36.70

