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APPENDIX 5

Delay Vector Variance Method WTB Experiment Results

SYSTEM LOADING		VARIABLES	METHOD 1				METHOD 2				METHOD 3			
			best m	best r	rsme	RSME	calc m	r	rsme	RSME	calc m	r	rsme	RSME
1	Initial exp 4.38 Hz Angle of incidence 8 degree	CH1	6	1	0.7205	0.3879	22	1	0.4213	0.3237	3	1	0.4583	0.2916
		CH2	7	9	0.9878	0.5660	17	1	0.1372	0.6237	3	1	0.3264	0.5585
		CH3	6	1	0.6747	0.4278	23	1	0.6317	0.4002	3	1	0.5505	0.4688
		LDVg	5	5	0.0953	0.3211	5	1	0.5040	0.3054	3	1	0.5773	0.3781
		LDV1	5	1	0.0438	0.3418	24	1	0.0972	0.3084	3	1	0.0412	0.3481
		LDV2	4	2	0.3101	0.2569	6	1	0.3365	0.2308	3	1	0.3086	0.1947
		Strain 1	9	8	0.6131	0.3351	14	1	0.2633	0.2194	3	1	0.3456	0.1875
		Strain 2	8	8	0.5617	0.3094	16	1	0.1099	0.1336	3	1	0.1305	0.1011
		Strain 3	7	7	0.3638	0.2181	17	1	0.0544	0.0697	3	1	0.0233	0.0422
		Strain 4	6	7	0.3284	0.1853	19	1	0.0703	0.0856	3	1	0.0382	0.0543
2	Initial exp Angle of incidence 8 degree	CH1	5	1	0.6093	0.3173	5	1	0.3588	0.2668	3	1	0.4816	0.3171
		CH2	5	8	0.9668	0.5607	23	1	0.3603	0.5924	3	1	0.2699	0.2972
		CH3	5	1	0.8097	0.4405	9	1	0.9294	0.5168	3	1	0.8021	0.4437
		LDVg	4	9	0.9328	0.5527	14	1	0.8386	0.5160	3	1	0.4085	0.3380
		LDV1	6	3	0.0671	0.1716	8	1	0.0213	0.1324	3	1	0.0119	0.1794
		LDV2	5	3	0.1485	0.1734	14	1	0.4531	0.2417	3	1	0.3783	0.1961
		Strain 1	9	8	0.6019	0.3269	19	1	0.2566	0.2387	3	1	0.2918	0.1683
		Strain 2	8	7	0.5645	0.3068	19	1	0.1864	0.1825	3	1	0.0941	0.1157
		Strain 3	8	7	0.4423	0.2436	17	1	0.1131	0.1043	3	1	0.0545	0.0430
		Strain 4	7	7	0.3938	0.2139	19	1	0.1028	0.1161	3	1	0.0666	0.0737
3	FOCUS AT THE ACCELEROMETER	CH1	5	1	0.4504	0.3275	22	1	0.5728	0.3890	3	1	0.3546	0.2426
		CH2	6	1	0.5751	0.4730	12	1	0.4747	0.3636	3	1	0.6560	0.4446
		CH3	5	1	0.5871	0.4145	17	1	0.8665	0.4817	3	1	0.8260	0.4483
		LDVg	4	4	0.3597	0.2869	9	1	0.2614	0.2851	3	1	0.1330	0.4179
		LDV1	6	1	0.1596	0.5475	18	1	0.1519	0.5148	3	1	0.0494	0.5983
		LDV2	5	3	0.4586	0.2360	15	1	0.4340	0.2332	3	1	0.3864	0.2038
		Strain 1	9	1	0.5881	0.3173	12	1	0.2616	0.2070	3	1	0.3687	0.2082
		Strain 2	9	3	0.6479	0.3525	14	1	0.1868	0.1676	3	1	0.1133	0.1077
		Strain 3	9	8	0.5000	0.3055	16	1	0.0878	0.0847	3	1	0.0595	0.0413
		Strain 5	7	10	0.3831	0.2087	23	1	0.1138	0.1097	3	1	0.0591	0.0695
4	with knocks, no movement, best result	CH1	6	2	0.0636	0.1588	24	1	0.0935	0.2328	3	1	0.0541	0.2235
		CH2	6	2	0.2161	0.3215	17	1	0.1887	0.5295	3	1	0.1357	0.4681
		CH3	9	10	0.5314	0.3025	12	1	0.2107	0.1925	3	1	0.3073	0.2552
		LDVg	4	9	0.8576	0.5388	24	1	0.7246	0.5184	3	1	0.1639	0.3749
		LDV1	6	6	0.1467	0.1748	4	1	0.0136	0.1512	3	1	0.0432	0.1841
		LDV2	6	10	0.4526	0.2310	4	1	0.2622	0.1386	3	1	0.2510	0.1401
		Strain 1	7	7	0.2510	0.1820	19	1	0.2288	0.1852	3	1	0.2072	0.1376
		Strain 2	7	7	0.1704	0.1744	22	1	0.1201	0.1642	3	1	0.0469	0.1272
		Strain 3	7	7	0.3900	0.1977	24	1	0.2027	0.1712	3	1	0.1166	0.1391
		Strain 4	6	7	0.3486	0.1778	24	1	0.1359	0.1640	3	1	0.0758	0.1462
5	Harmonic resonance 4.4Hz Focus at accelerometer	CH1	6	10	0.0572	0.1473	13	1	0.0206	0.0943	3	1	0.0154	0.0872
		CH2	6	9	0.2603	0.2511	18	1	0.0178	0.1082	3	1	0.0139	0.1140
		CH3	3	9	0.0311	0.2153	7	1	0.0025	0.1630	3	1	0.0027	0.1741
		LDV	6	9	0.1335	0.2412	15	1	0.0863	0.1701	3	1	0.0595	0.1685
		LDV1	4	1	0.0070	0.1382	4	1	0.0090	0.1386	3	1	0.0031	0.1345
		LDV2	10	10	0.1712	0.1689	15	1	0.1024	0.1561	3	1	0.1424	0.1490
		Strain 1	10	9	0.1363	0.1717	4	1	0.1029	0.1583	3	1	0.1087	0.1381
		Strain 2	10	9	0.1358	0.1728	14	1	0.1973	0.2004	3	1	0.1003	0.1408
		Strain 3	10	9	0.1342	0.1726	4	1	0.1294	0.1608	3	1	0.1163	0.1417
		Strain 4	10	9	0.1340	0.1733	15	1	0.2504	0.2158	3	1	0.1123	0.1423
6	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0Hz 5.5 Hz 6.0 Hz 6.5Hz 7.0Hz Focus at accelerometer	CH1	7	10	0.2275	0.1270	5	1	0.0798	0.1487	3	1	0.0232	0.1595
		CH2	6	10	0.0394	0.1630	25	1	0.0428	0.1091	3	1	0.0170	0.0370
		CH3	5	10	0.0115	0.1307	13	1	0.0120	0.1562	3	1	0.0093	0.1984
		LDVg	9	9	0.2784	0.2324	23	1	0.1238	0.0992	3	1	0.0457	0.0861
		LDV1	6	10	0.1399	0.1412	8	1	0.0647	0.1352	3	1	0.0227	0.1566
		LDV2	10	10	0.3261	0.1723	4	1	0.2445	0.1365	3	1	0.2419	0.1441
		Strain 1	10	9	0.4033	0.2160	8	1	0.2391	0.1495	3	1	0.2333	0.1283
		Strain 2	9	7	0.2962	0.1651	21	1	0.2939	0.1699	3	1	0.2085	0.1367
		Strain 3	8	7	0.3948	0.2094	20	1	0.4380	0.2272	3	1	0.2630	0.1443
		Strain 4	8	7	0.3774	0.1991	5	1	0.2741	0.1440	3	1	0.2032	0.1226

7	Loading Sine sweep 2.0 Hz 6.0 Hz 60 sec Focus at accelerometer	CH1	4	10	0.0464	0.2276	11	1	0.0367	0.2039	3	1	0.0600	0.3182
		CH2	2	6	0.0578	0.2472	19	1	0.0725	0.1439	3	1	0.0688	0.1016
		CH3	4	9	0.0413	0.1323	25	1	0.0384	0.1946	3	1	0.0041	0.2724
		LDVg	10	2	0.3604	0.2572	12	1	0.1016	0.1091	3	1	0.0431	0.1088
		LDV1	6	6	0.3849	0.2246	10	1	0.0405	0.1303	3	1	0.0128	0.1705
		LDV2	8	10	0.0475	0.1453	12	1	0.3114	0.1656	3	1	0.2466	0.1656
		Strain 1	10	10	0.1344	0.1098	7	1	0.2157	0.1395	3	1	0.2384	0.1329
		Strain 2	10	9	0.1039	0.1309	18	1	0.2502	0.1598	3	1	0.1746	0.1363
		Strain 3	10	9	0.3815	0.2012	19	1	0.3918	0.2048	3	1	0.2432	0.1374
		Strain 4	10	9	0.3811	0.1996	23	1	0.3339	0.1717	3	1	0.2277	0.1420
8	Loading White Noise Focus at accelerometer	CH1	4	1	0.0036	0.0732	10	1	0.0160	0.1327	3	1	0.0104	0.0686
		CH2	5	1	0.0435	0.1647	19	1	0.0804	0.1612	3	1	0.0347	0.1264
		CH3	3	1	0.0224	0.0949	16	1	0.0383	0.1911	3	1	0.0168	0.0917
		LDVg	4	1	0.2189	0.3606	19	1	0.0113	0.3882	3	1	0.0444	0.2542
		LDV1	6	10	0.1990	0.1854	12	1	0.0274	0.1337	3	1	0.0057	0.1268
		LDV2	9	10	0.2077	0.2278	14	1	0.3092	0.2399	3	1	0.2351	0.2062
		Strain 1	7	7	0.2163	0.3643	22	1	0.3935	0.3613	3	1	0.2497	0.3134
		Strain 2	7	7	0.1296	0.2625	24	1	0.2236	0.2427	3	1	0.0852	0.2064
		Strain 3	10	6	0.3315	0.2834	17	1	0.1921	0.1646	3	1	0.1455	0.1260
		Strain 4	10	10	0.3392	0.2944	16	1	0.0946	0.1124	3	1	0.0854	0.0854
9	Loading White noise 4.365Hz at the peak Focus at top strain gauge	CH1	2	7	0.0203	0.1421	7	1	0.0114	0.1050	3	1	0.0121	0.0704
		CH2	5	1	0.0394	0.1675	18	1	0.0761	0.1552	3	1	0.0297	0.1257
		CH3	5	1	0.0123	0.1200	25	1	0.0501	0.2024	3	1	0.0222	0.0947
		LDVg	5	1	0.2075	0.3547	15	1	0.0690	0.3539	3	1	0.0522	0.2421
		LDV1	3	9	0.0339	0.1178	15	1	0.0119	0.1097	3	1	0.0071	0.0961
		LDV2	2	1	0.0059	0.1578	17	1	0.2185	0.2670	3	1	0.1820	0.2898
		Strain 1	3	3	0.0082	0.3065	6	1	0.2182	0.3492	3	1	0.2197	0.3364
		Strain 2	2	9	0.0052	0.3211	7	1	0.0842	0.2754	3	1	0.0730	0.2318
		Strain 3	10	6	0.2223	0.2959	23	1	0.1423	0.1939	3	1	0.1275	0.1328
		Strain 4	10	10	0.0073	0.1965	7	1	0.0813	0.1675	3	1	0.0804	0.0913
10	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at top strain gauge	CH1	7	10	0.0696	0.1634	19	1	0.0964	0.2472	3	1	0.0406	0.2608
		CH2	2	8	0.0451	0.2468	20	1	0.0536	0.1117	3	1	0.0443	0.0576
		CH3	5	10	0.0142	0.1677	3	1	0.0102	0.2814	3	1	0.0688	0.3002
		LDVg	10	2	0.3382	0.2526	4	1	0.0559	0.1080	3	1	0.0501	0.0948
		LDV1	6	9	0.3271	0.1985	22	1	0.0585	0.1792	3	1	0.0137	0.1854
		LDV2	8	10	0.1156	0.1703	15	1	0.3039	0.1775	3	1	0.2673	0.1696
		Strain 1	10	10	0.1380	0.1337	14	1	0.4121	0.2053	3	1	0.2496	0.1449
		Strain 2	10	9	0.3985	0.2059	10	1	0.2505	0.1497	3	1	0.2046	0.1533
		Strain 3	10	9	0.4153	0.2148	11	1	0.3410	0.1694	3	1	0.3243	0.1976
		Strain 4	10	9	0.3978	0.2049	12	1	0.3542	0.1764	3	1	0.2607	0.1687
11	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0Hz 5.5 Hz 6.0 Hz 6.5Hz 7.0Hz Focus at top strain gauge	CH1	7	10	0.0832	0.1831	19	1	0.0857	0.2276	3	1	0.0090	0.2512
		CH2	6	10	0.0562	0.1197	22	1	0.0283	0.0817	3	1	0.0116	0.0566
		CH3	4	9	0.0117	0.1400	22	1	0.0071	0.1270	3	1	0.0033	0.1931
		LDVg	10	3	0.1712	0.1685	25	1	0.1249	0.1246	3	1	0.0476	0.1111
		LDV1	8	10	0.1882	0.1488	22	1	0.1733	0.1619	3	1	0.0513	0.1534
		LDV2	10	10	0.3138	0.1713	23	1	0.2482	0.1402	3	1	0.2315	0.1334
		Strain 1	10	10	0.2620	0.1491	17	1	0.4013	0.2202	3	1	0.2123	0.1152
		Strain 2	10	9	0.3953	0.2354	21	1	0.3584	0.1932	3	1	0.2224	0.1279
		Strain 3	10	9	0.3963	0.2366	5	1	0.2270	0.1398	3	1	0.2484	0.1399
		Strain 4	10	9	0.3737	0.2128	19	1	0.4437	0.2166	3	1	0.2365	0.1354
12	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0Hz 5.5 Hz 6.0 Hz 6.5Hz 7.0Hz Focus at mid strain gauge	CH1	2	1	0.1527	0.1006	4	1	0.0109	0.0823	3	1	0.0125	0.0867
		CH2	2	8	0.0106	0.3796	22	1	0.0315	0.2460	3	1	0.0153	0.1746
		CH3	4	4	0.0039	0.1078	1	1	0.0044	0.1585	3	1	0.0020	0.1523
		LDVg	10	2	0.1702	0.1444	22	1	0.1419	0.1289	3	1	0.0433	0.1084
		LDV1	7	9	0.1465	0.1440	2	1	0.0104	0.1702	3	1	0.0289	0.1622
		LDV2	10	9	0.3163	0.1872	24	1	0.2205	0.1337	3	1	0.2131	0.1233
		Strain 1	10	10	0.2410	0.1465	5	1	0.2325	0.1457	3	1	0.2172	0.1187
		Strain 2	10	10	0.2919	0.1654	23	1	0.3287	0.1857	3	1	0.1936	0.1191
		Strain 3	10	9	0.3749	0.2301	18	1	0.4264	0.2194	3	1	0.2271	0.1299
		Strain 4	10	9	0.3499	0.2086	7	1	0.2936	0.1784	3	1	0.2519	0.1433

13	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at mid strain gauge	CH1	3	9	0.0425	0.2044	21	1	0.0639	0.3005	3	1	0.0241	0.2905
		CH2	8	9	0.1169	0.2192	17	1	0.0798	0.1423	3	1	0.0533	0.0738
		CH3	3	8	0.0259	0.1349	22	1	0.0196	0.1741	3	1	0.0227	0.2591
		LDVg	10	2	0.1912	0.1799	7	1	0.1105	0.1670	3	1	0.0619	0.1380
		LDV1	6	6	0.1866	0.2810	5	1	0.0367	0.3386	3	1	0.0668	0.3511
		LDV2	7	7	0.0617	0.2329	24	1	0.5283	0.3078	3	1	0.4848	0.3156
		Strain 1	10	10	0.0882	0.1039	22	1	0.4030	0.2106	3	1	0.2604	0.1358
		Strain 2	9	9	0.0766	0.1423	7	1	0.2112	0.1369	3	1	0.2040	0.1564
		Strain 3	10	9	0.3634	0.1895	5	1	0.2536	0.1320	3	1	0.2723	0.1620
14	Loading White noise 4.336Hz at the peak next 23Hz Focus at mid strain gauge	CH1	5	1	0.0072	0.0756	24	1	0.0156	0.0853	3	1	0.0080	0.0732
		CH2	5	1	0.0372	0.1616	14	1	0.0489	0.1552	3	1	0.0277	0.1218
		CH3	4	1	0.0190	0.1089	21	1	0.0537	0.1977	3	1	0.0153	0.0961
		LDVg	8	1	0.1692	0.3932	25	1	0.0381	0.4272	3	1	0.0524	0.2549
		LDV1	2	2	0.0030	0.2366	3	1	0.0044	0.1145	3	1	0.0019	0.1134
		LDV2	2	4	0.1031	0.3799	4	1	0.2186	0.2779	3	1	0.2233	0.2656
		Strain 1	2	5	0.0023	0.3227	18	1	0.2176	0.4070	3	1	0.2059	0.3447
		Strain 2	3	5	0.0068	0.2992	22	1	0.0866	0.2729	3	1	0.0637	0.2257
		Strain 3	2	9	0.2249	0.3144	25	1	0.1299	0.1882	3	1	0.1149	0.1277
15	Loading White noise 4.336Hz at the peak next 23Hz Focus at bottom strain gauge	CH1	4	1	0.0062	0.0692	5	1	0.0066	0.0772	3	1	0.0038	0.0668
		CH2	5	1	0.0321	0.1750	22	1	0.0695	0.1675	3	1	0.0206	0.1353
		CH3	4	1	0.0192	0.1124	17	1	0.0467	0.1979	3	1	0.0168	0.0963
		LDVg	8	1	0.0505	0.3124	9	1	0.0654	0.3185	3	1	0.0442	0.2607
		LDV1	2	10	0.0086	0.1173	19	1	0.0120	0.0846	3	1	0.0041	0.1057
		LDV2	6	1	0.3039	0.3063	18	1	0.3192	0.3524	3	1	0.2591	0.2782
		Strain 1	8	1	0.3199	0.3504	14	1	0.3787	0.3699	3	1	0.2443	0.3280
		Strain 2	7	7	0.1514	0.3172	19	1	0.1445	0.2367	3	1	0.2132	0.2352
		Strain 3	10	6	0.1905	0.2279	18	1	0.1627	0.1652	3	1	0.2765	0.1664
16	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at bottom strain gauge	CH1	4	10	0.0716	0.1065	25	1	0.0620	0.1974	3	1	0.0354	0.2434
		CH2	2	5	0.0396	0.2383	7	1	0.0333	0.0989	3	1	0.0144	0.0673
		CH3	3	10	0.0141	0.1101	9	1	0.0089	0.1931	3	1	0.0087	0.2193
		LDVg	10	2	0.1700	0.1688	21	1	0.1494	0.1387	3	1	0.0528	0.1211
		LDV1	6	6	0.1758	0.1823	11	1	0.0872	0.1796	3	1	0.0314	0.2079
		LDV2	8	8	0.3659	0.2303	20	1	0.3000	0.1593	3	1	0.2509	0.1316
		Strain 1	10	10	0.1578	0.1270	9	1	0.2749	0.1510	3	1	0.2501	0.1336
		Strain 2	9	9	0.1196	0.1483	6	1	0.2365	0.1597	3	1	0.1830	0.1559
		Strain 3	10	10	0.4309	0.2256	10	1	0.3394	0.1691	3	1	0.2680	0.1610
17	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0Hz 5.5 Hz 6.0 Hz 6.5Hz Focus at bottom strain gauge.	CH1	7	10	0.1119	0.1255	22	1	0.1015	0.1965	3	1	0.0530	0.2385
		CH2	6	10	0.0359	0.1084	17	1	0.0197	0.0814	3	1	0.0073	0.0491
		CH3	4	10	0.0191	0.1464	14	1	0.0181	0.1311	3	1	0.0152	0.1867
		LDVg	10	8	0.2920	0.2477	13	1	0.1010	0.0961	3	1	0.0445	0.1009
		LDV1	5	9	0.0212	0.1582	11	1	0.0163	0.1671	3	1	0.0111	0.1873
		LDV2	8	7	0.3506	0.2324	21	1	0.3050	0.1632	3	1	0.2263	0.1206
		Strain 1	10	7	0.3605	0.2185	15	1	0.3875	0.2077	3	1	0.2459	0.1285
		Strain 2	9	7	0.3372	0.1942	10	1	0.2350	0.1589	3	1	0.2011	0.1230
		Strain 3	10	7	0.4138	0.2289	10	1	0.2820	0.1681	3	1	0.2267	0.1304
18	Strain 5 - strain gauge 5 opposite of 3	CH1	9	7	0.3715	0.2099	9	1	0.2784	0.1719	3	1	0.2293	0.1324

* accelerometer placed close to the top of WTB

CH1 - accelerometer channel 1 in the direction of applied vibrations

CH2 - accelerometer channel 2 perpendicular to the direction of applied vibrations

CH3 - accelerometer channel 3 perpendicular to the direction of applied vibrations

LDVg - laser dopler vibrometer (LDV) measurements of accelerometer input

LDV1 - LDV measurements (displacement)

LDV2 - LDV measurements (velocity)

Strain 1 - strain gauge 1 at 1/3 length of WTB from the top

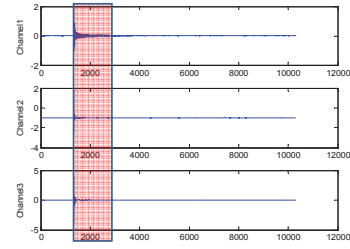
Strain 2 - strain gauge 2 at 2/3 length of WTB from the top

Strain 3 - strain gauge 3 close to bottom of WTB

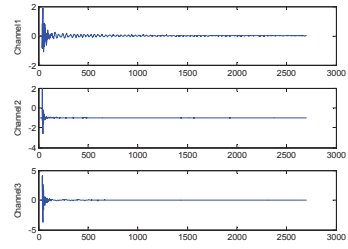
Strain 5 - strain gauge 5 opposite of 3

EXPERIMENT	VARIABLES		METHOD 1				METHOD 2				METHOD 3			
			best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME
1	Initial exp 4.38 Hz Angle of incidence 8 degree	CH1	6	1	0.7205	0.3879	22	1	0.4213	0.3237	3	1	0.4583	0.2916
		CH2	7	9	0.9878	0.5660	17	1	0.1372	0.6237	3	1	0.3264	0.5585
		CH3	6	1	0.6747	0.4278	23	1	0.6317	0.4002	3	1	0.5505	0.4688
		LDVg	5	5	0.0953	0.3211	5	1	0.5040	0.3054	3	1	0.5773	0.3781
		LDV1	5	1	0.0438	0.3418	24	1	0.0972	0.3084	3	1	0.0412	0.3481
		LDV2	4	2	0.3101	0.2569	6	1	0.3365	0.2308	3	1	0.3086	0.1947
		Strain 1	9	8	0.6131	0.3351	14	1	0.2633	0.2194	3	1	0.3456	0.1875
		Strain 2	8	8	0.5617	0.3094	16	1	0.1099	0.1336	3	1	0.1305	0.1011
		Strain 3	7	7	0.3638	0.2181	17	1	0.0544	0.0697	3	1	0.0233	0.0422
		Strain 4	6	7	0.3284	0.1853	19	1	0.0703	0.0856	3	1	0.0382	0.0543

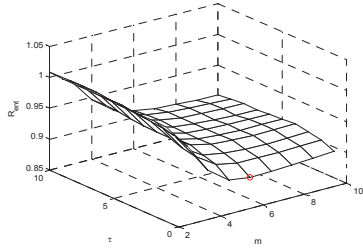
Data recorded 3D Accelerometer



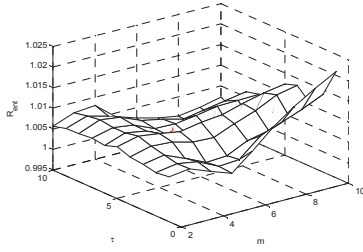
Data analysed 3D Accelerometer



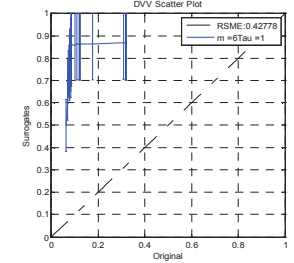
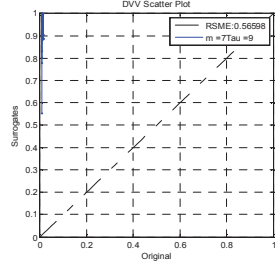
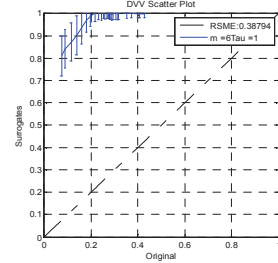
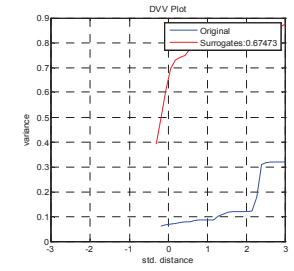
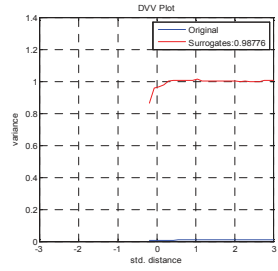
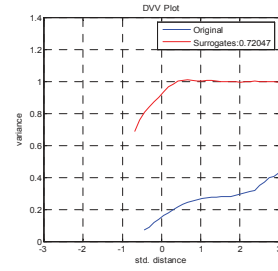
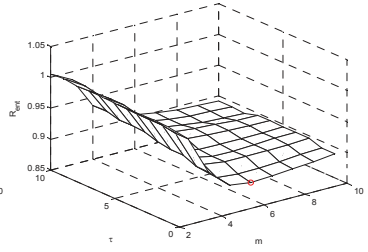
METHOD 1



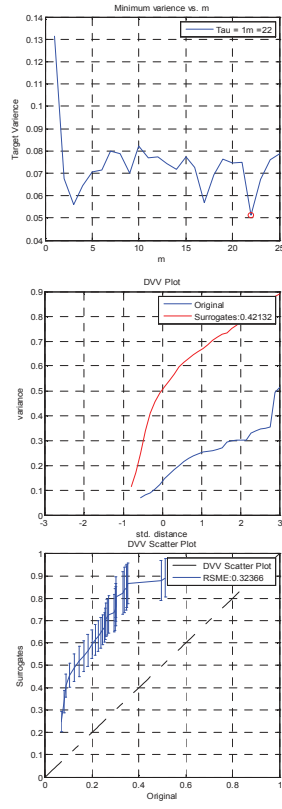
CH2



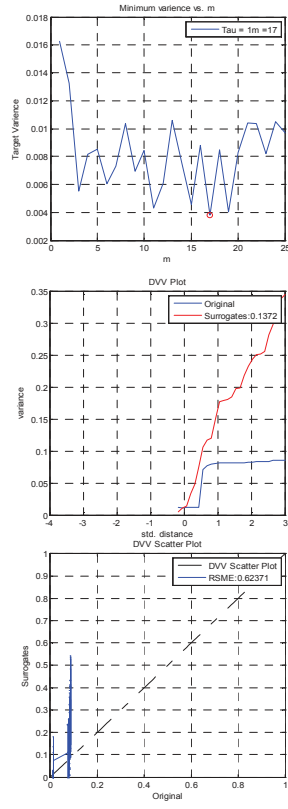
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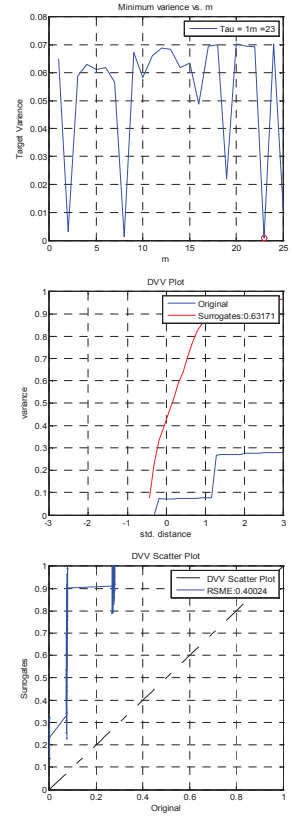
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CH2

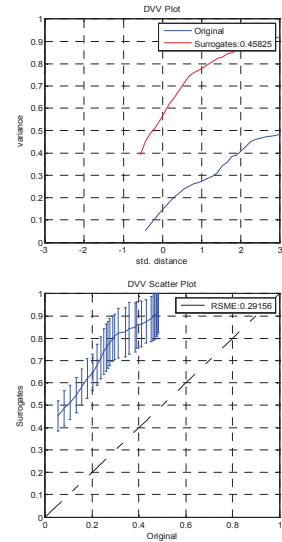


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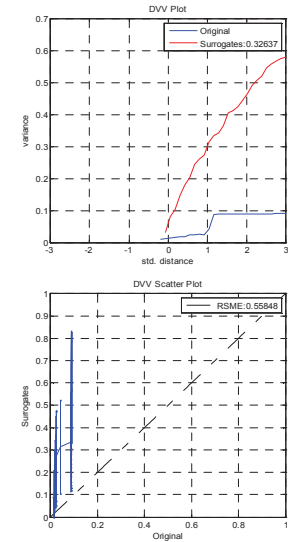


METHOD 3

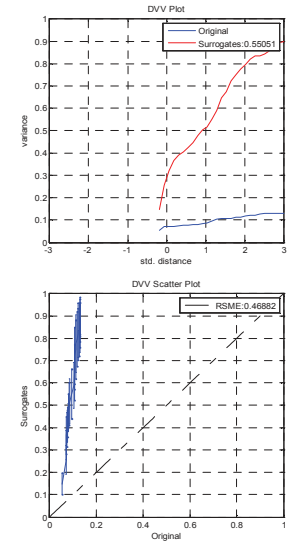
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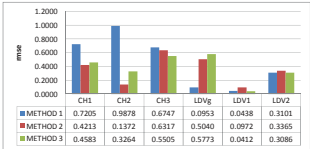
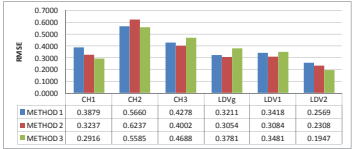


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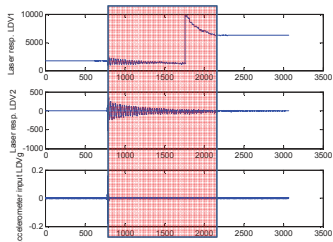


CH3

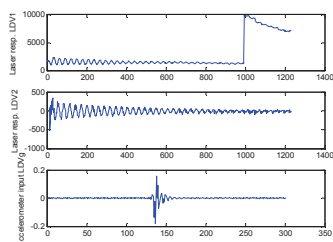




Data recorded LDV



Data analysed LDV



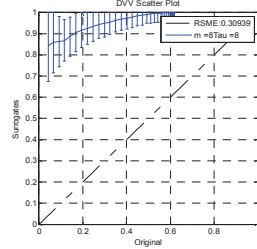
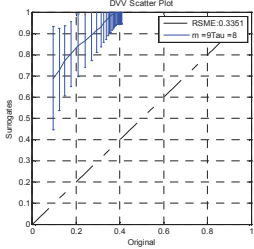
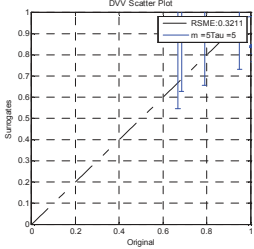
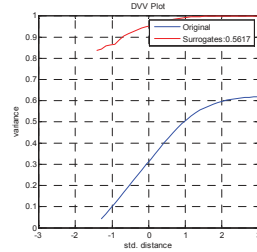
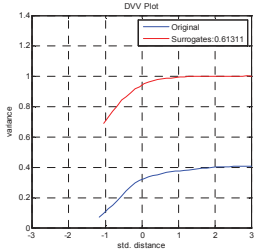
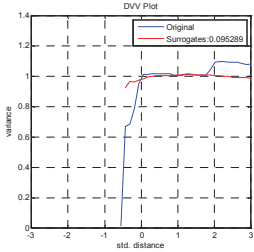
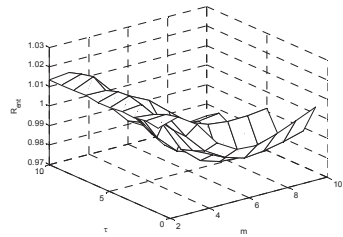
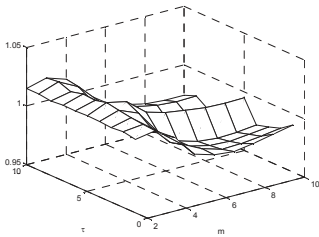
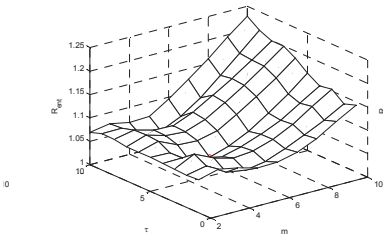
EXP

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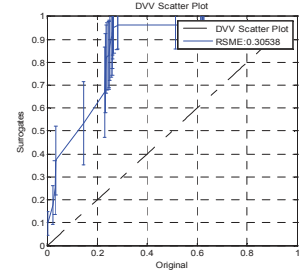
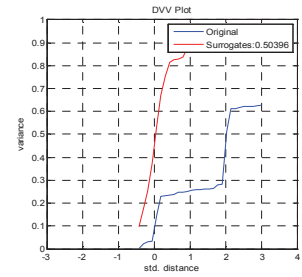
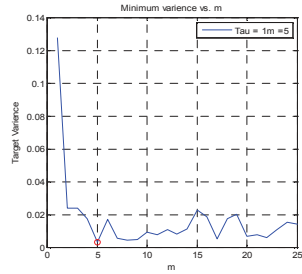
LDVg

LDV1

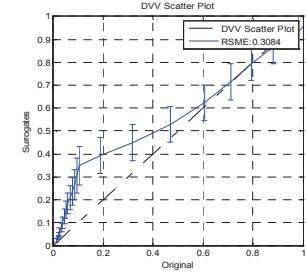
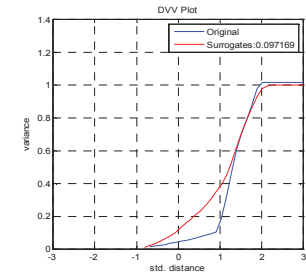
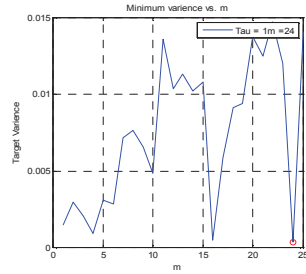
LDV2



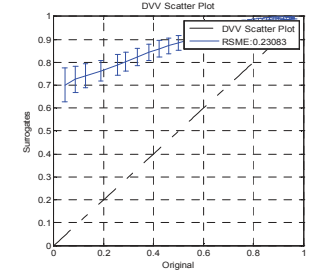
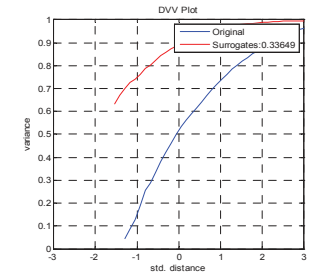
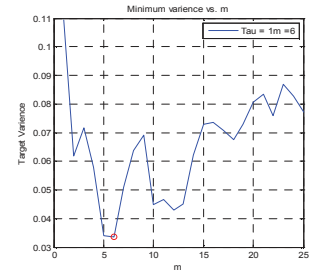
LDVg



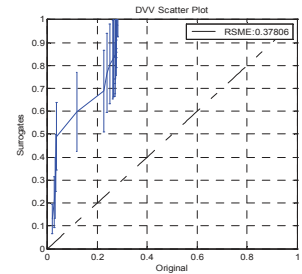
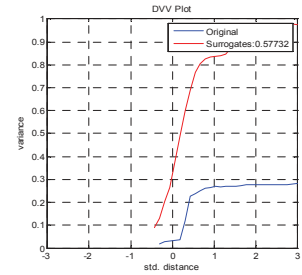
LDV1



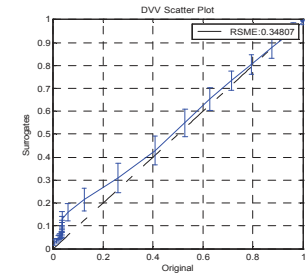
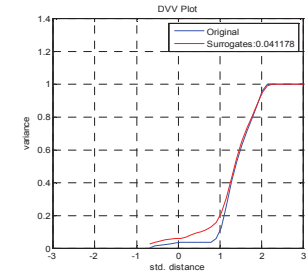
LDV2



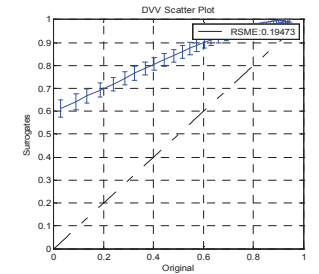
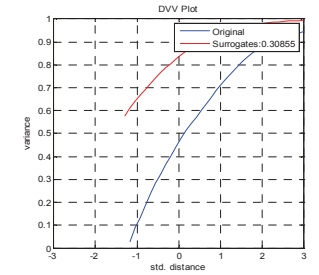
LDVg

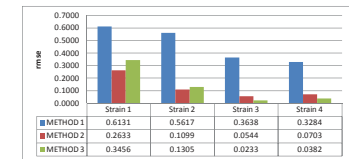
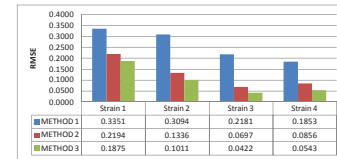
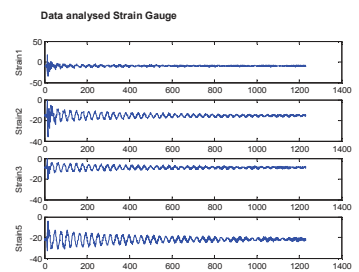
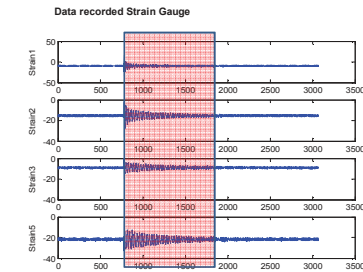


LDV1



LDV2





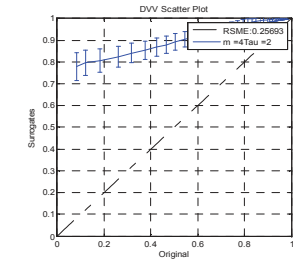
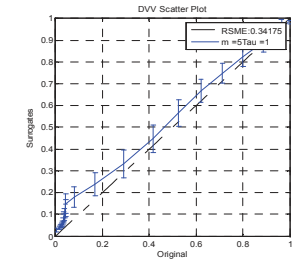
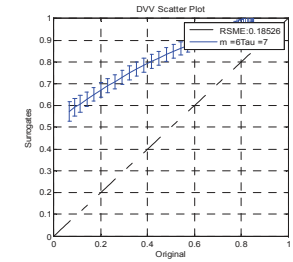
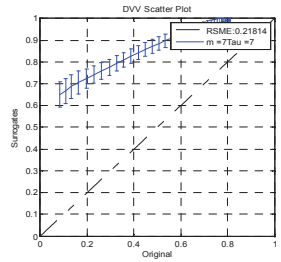
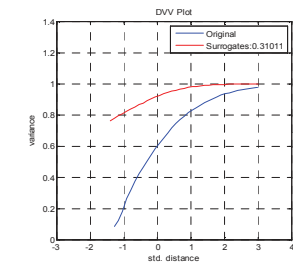
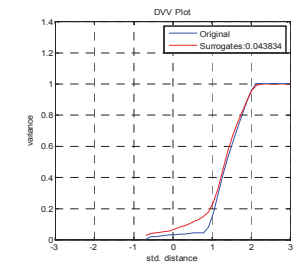
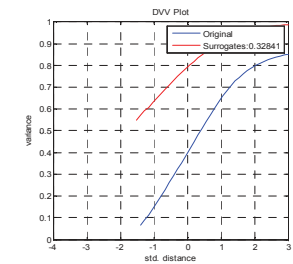
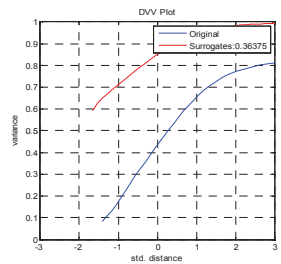
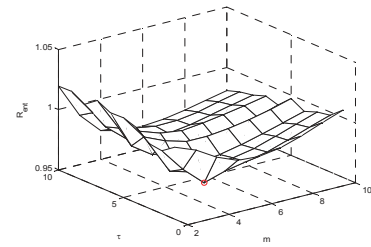
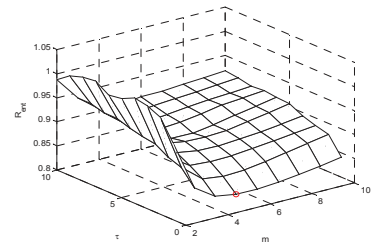
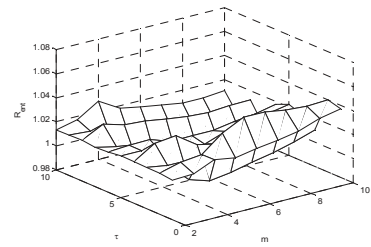
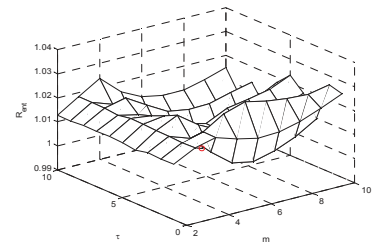
EXP 1

STRAIN 1

STRAIN 2

STRAIN 3

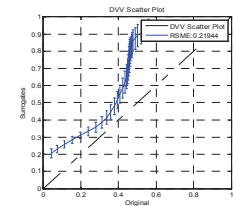
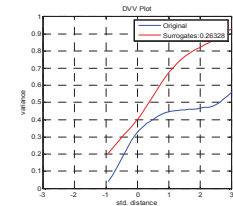
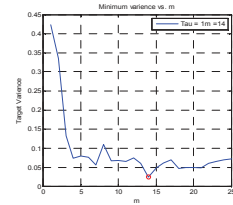
STRAIN 4



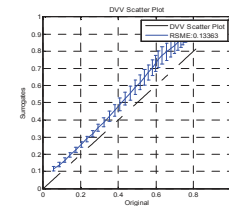
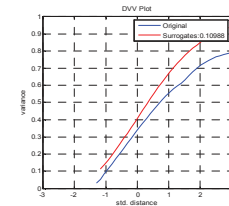
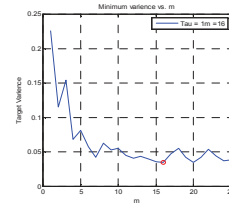
EXP

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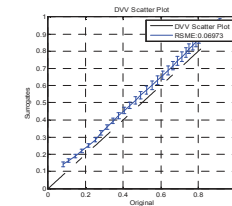
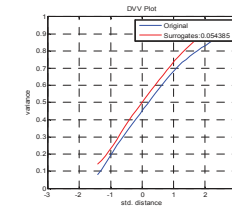
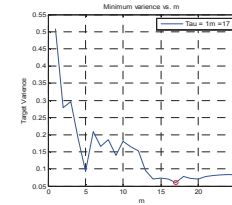
STRAIN 1



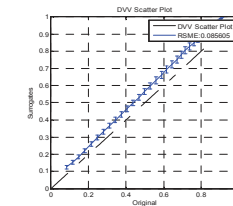
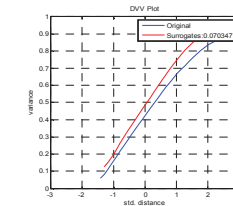
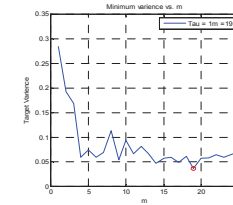
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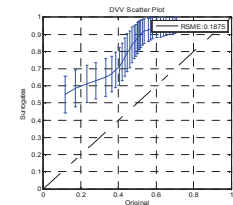
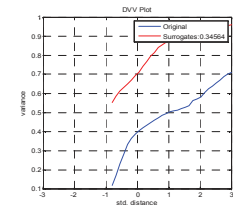
STRAIN 3



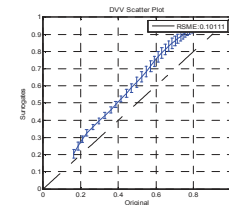
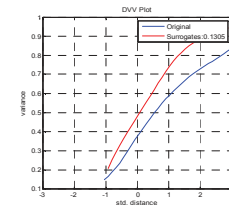
STRAIN 4



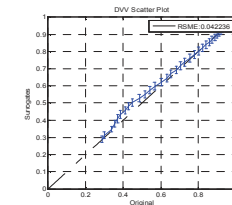
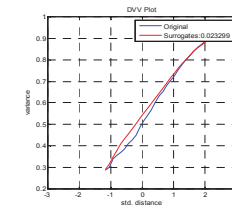
STRAIN 1



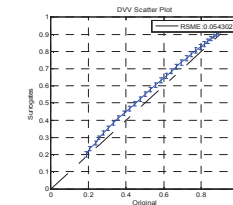
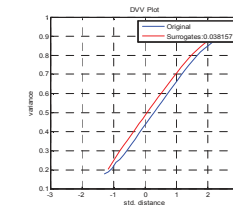
STRAIN 2



STRAIN 3

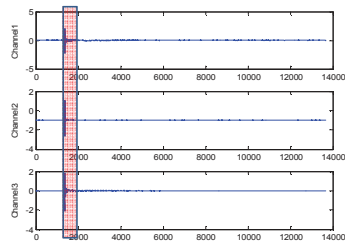


STRAIN 4

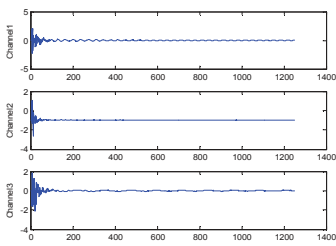


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
2	Initial exp Angle of incidence: 8 degree	CH1	5	1	0.6093	0.3173	5	1	0.3588	0.2668	3	1	0.4816	0.3171
		CH2	5	8	0.9668	0.5607	23	1	0.3603	0.5924	3	1	0.2699	0.2972
		CH3	5	1	0.8097	0.4405	9	1	0.9294	0.5168	3	1	0.8021	0.4437
		LDVg	4	9	0.9328	0.5527	14	1	0.8386	0.5160	3	1	0.4085	0.3380
		LDV1	6	3	0.0671	0.1716	8	1	0.0213	0.1324	3	1	0.0119	0.1794
		LDV2	5	3	0.1485	0.1734	14	1	0.4531	0.2417	3	1	0.3783	0.1961
		Strain 1	9	8	0.6019	0.3269	19	1	0.2566	0.2387	3	1	0.2918	0.1683
		Strain 2	8	7	0.5645	0.3068	19	1	0.1864	0.1825	3	1	0.0941	0.1157
		Strain 3	8	7	0.4423	0.2436	17	1	0.1131	0.1043	3	1	0.0545	0.0430
		Strain 4	7	7	0.3936	0.2139	19	1	0.1028	0.1161	3	1	0.0666	0.0737

Data recorded 3D Accelerometer

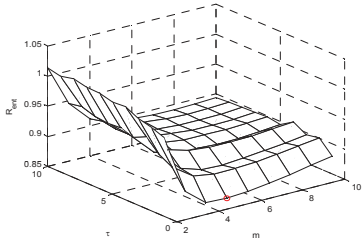


Data analysed 3D Accelerometer

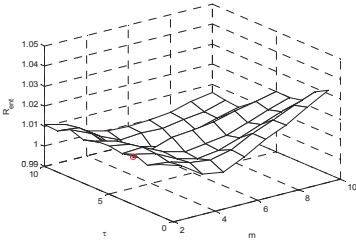


METHOD 1

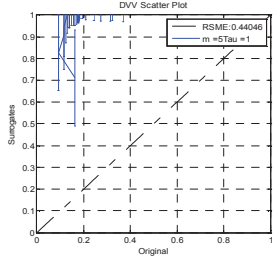
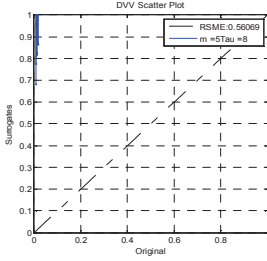
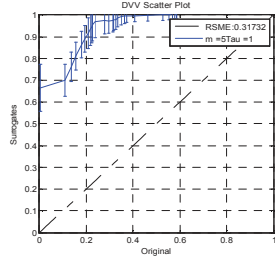
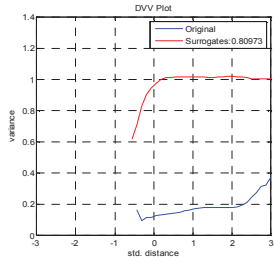
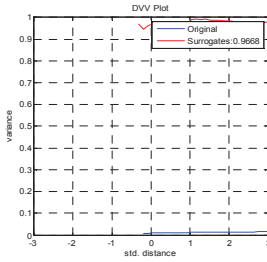
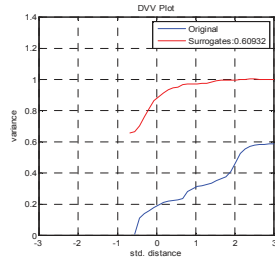
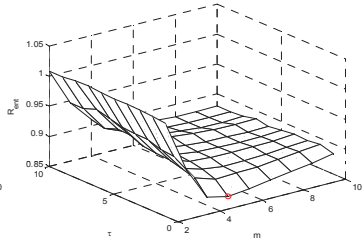
CH1

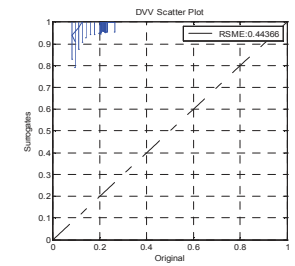
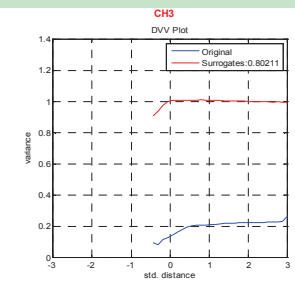
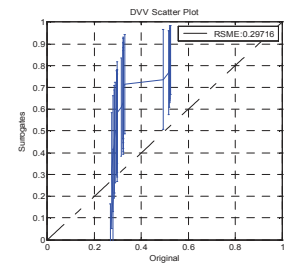
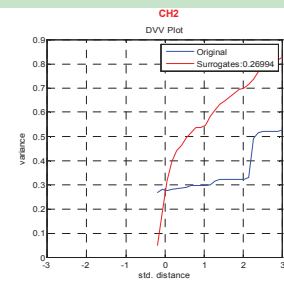
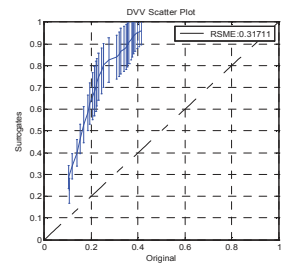
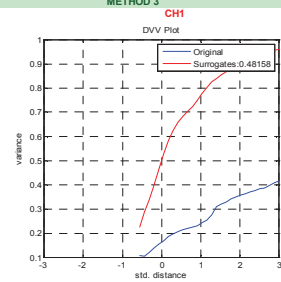
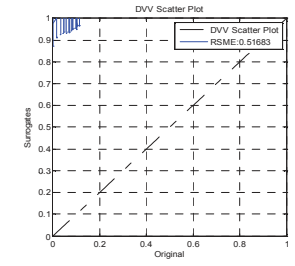
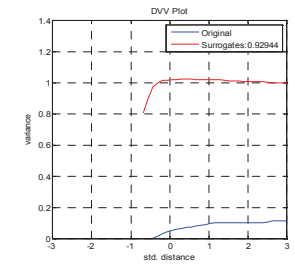
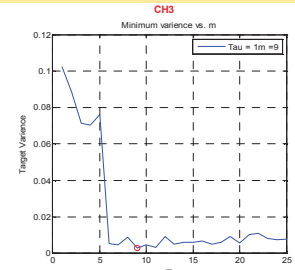
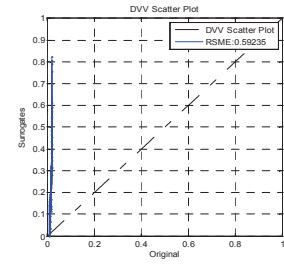
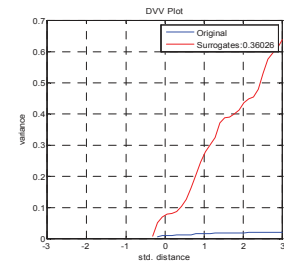
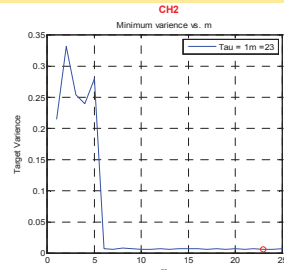
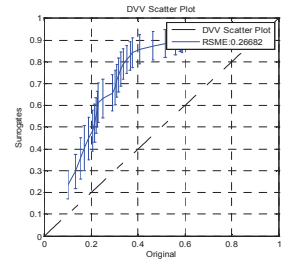
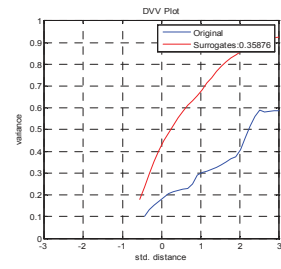
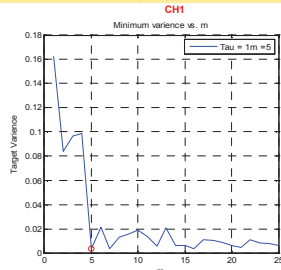


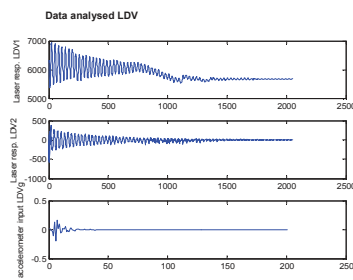
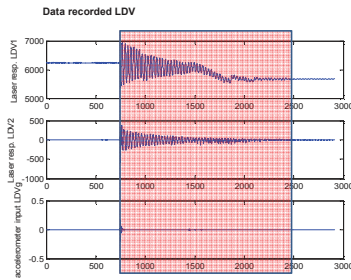
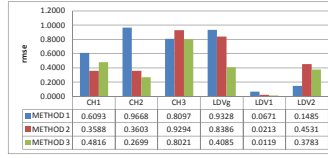
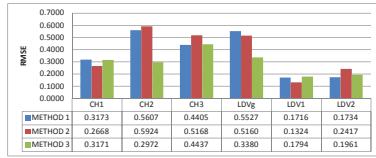
CH2



CH3



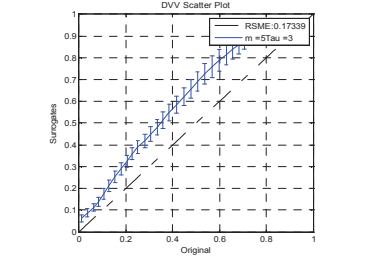
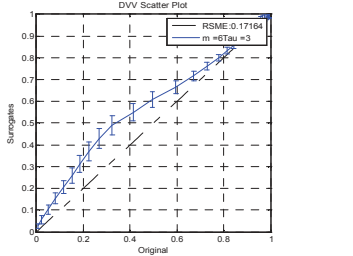
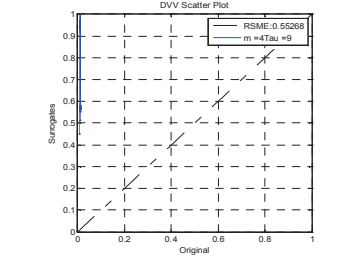
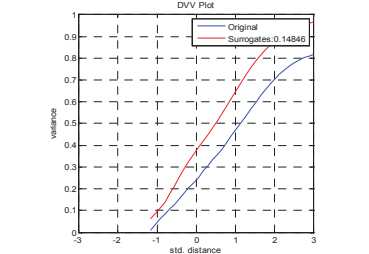
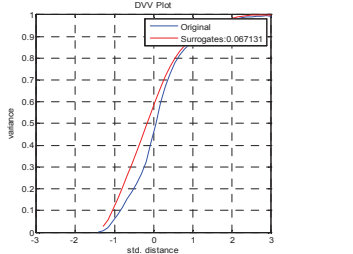
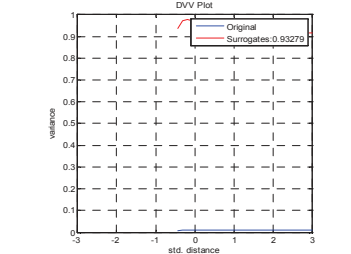
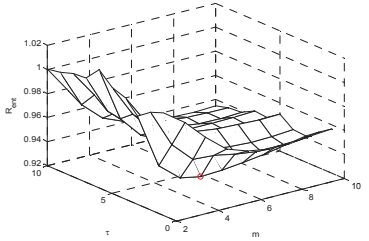
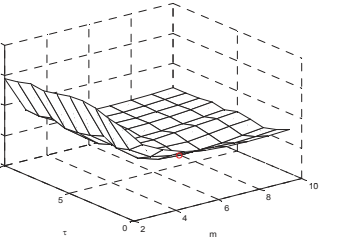
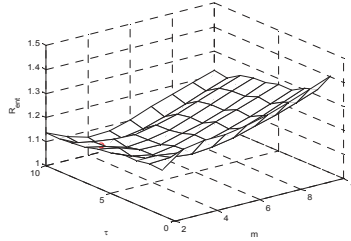


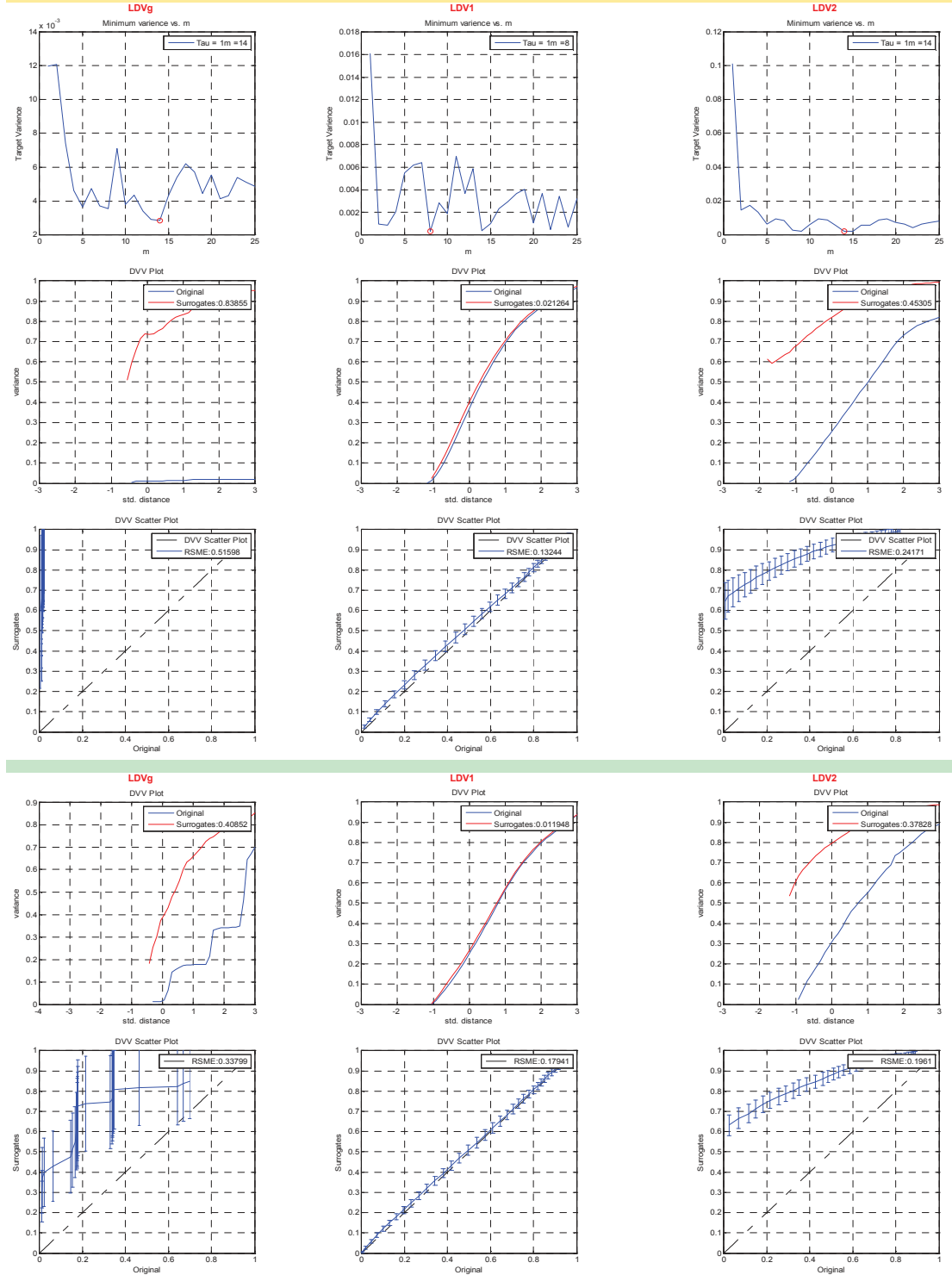


EXP 2 LDVg

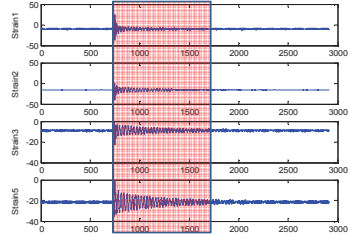
LDV1

LDV2

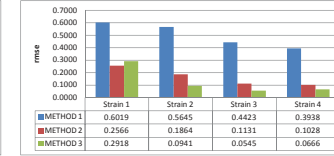
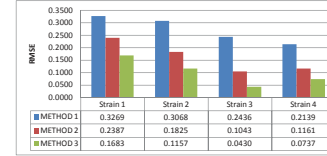
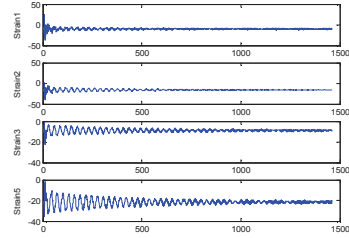




Data recorded Strain Gauge

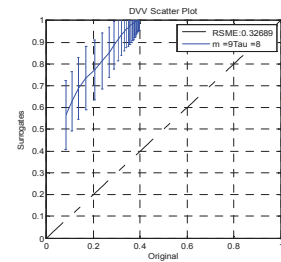
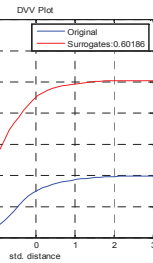
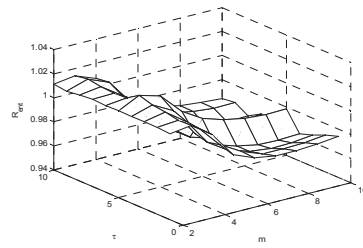


Data analysed Strain Gauge

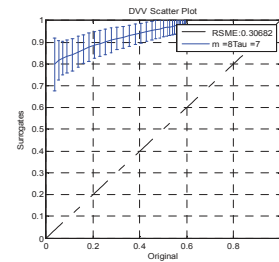
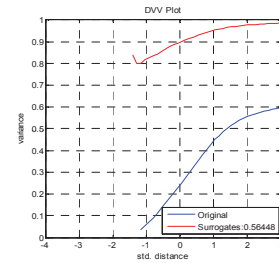
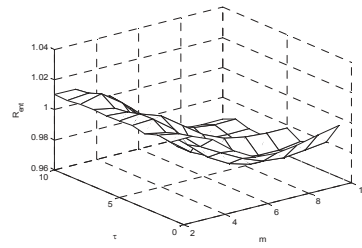


EXP 2

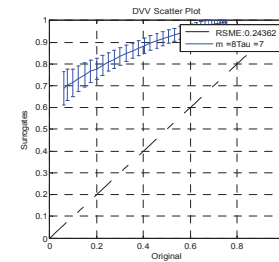
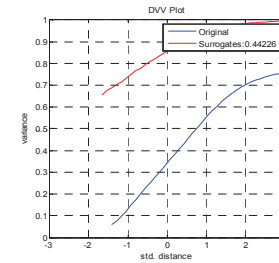
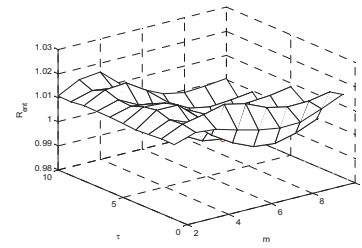
STRAIN 1



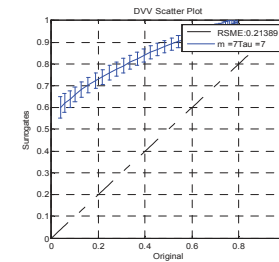
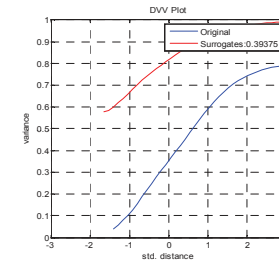
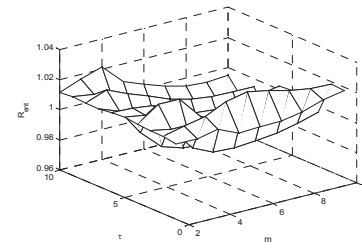
STRAIN 2

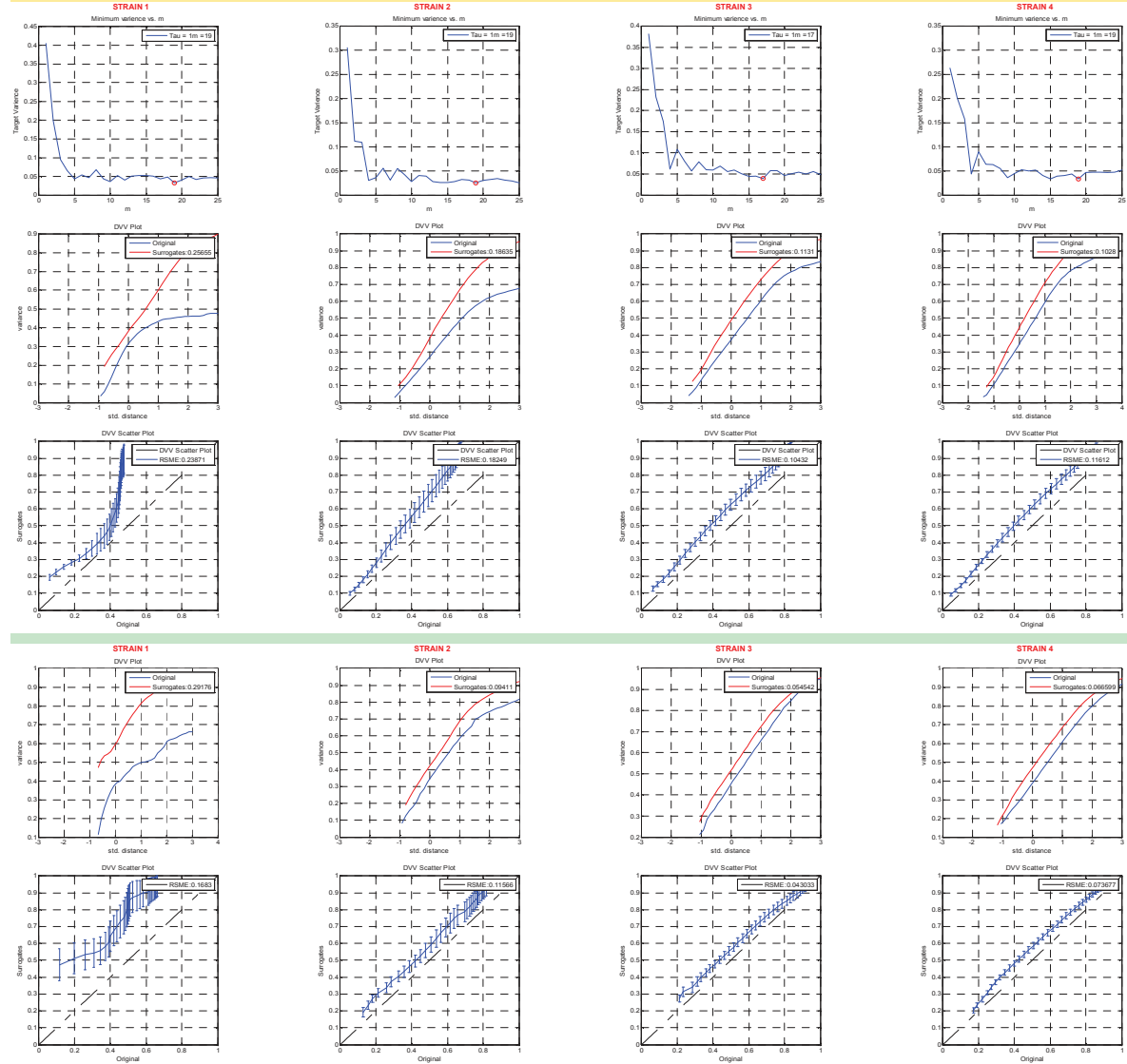


STRAIN 3



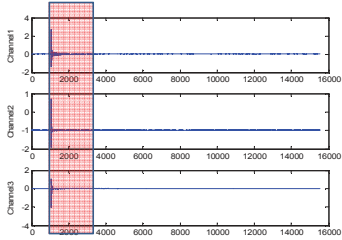
STRAIN 4



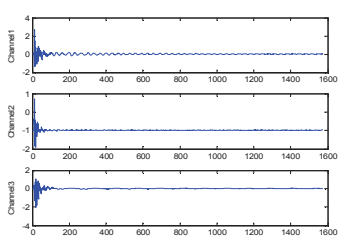


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
3	FOCUS AT THE ACCELEROMETER	CH1	5	1	0.4504	0.3275	22	1	0.5728	0.3890	3	1	0.3546	0.2426
		CH2	6	1	0.5751	0.4730	12	1	0.4747	0.3636	3	1	0.6560	0.4446
		CH3	5	1	0.5871	0.4145	17	1	0.8665	0.4817	3	1	0.8260	0.4483
		LDVg	4	4	0.3597	0.2869	9	1	0.2614	0.2851	3	1	0.1330	0.4179
		LDV1	6	1	0.1596	0.5475	18	1	0.1519	0.5148	3	1	0.0494	0.5983
		LDV2	5	3	0.4586	0.2360	15	1	0.4340	0.2332	3	1	0.3864	0.2038
		Strain 1	9	8	0.5881	0.3173	12	1	0.2616	0.2070	3	1	0.3687	0.2082
		Strain 2	9	10	0.6479	0.3525	14	1	0.1868	0.1676	3	1	0.1133	0.1077
		Strain 3	9	9	0.5000	0.3055	16	1	0.0878	0.0847	3	1	0.0595	0.0413
		Strain 5	7	7	0.3831	0.2087	23	1	0.1138	0.1097	3	1	0.0591	0.0695

Data recorded 3D Accelerometer

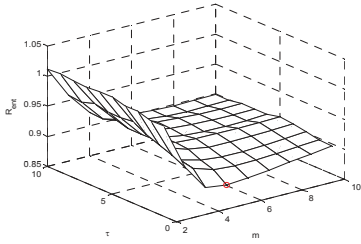


Data analysed 3D Accelerometer

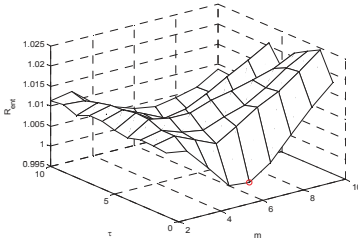


METHOD 1

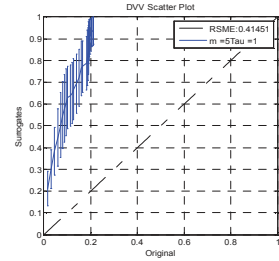
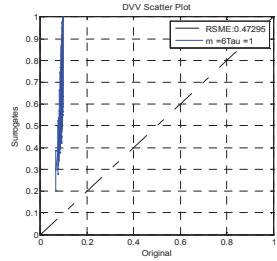
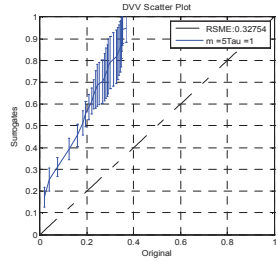
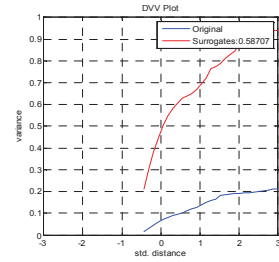
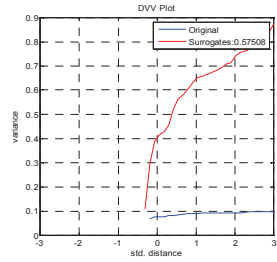
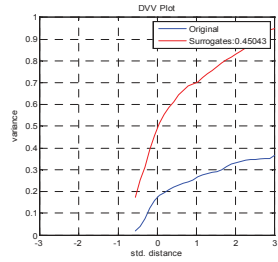
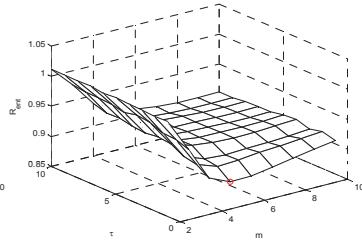
CH1



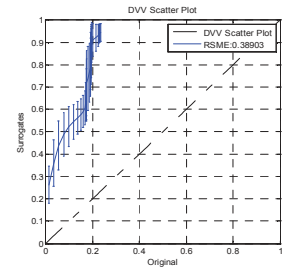
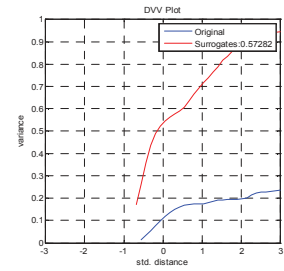
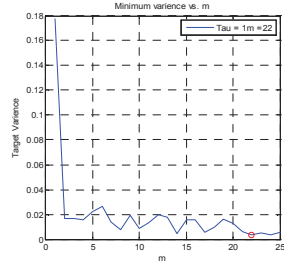
CH2



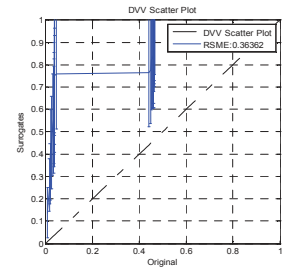
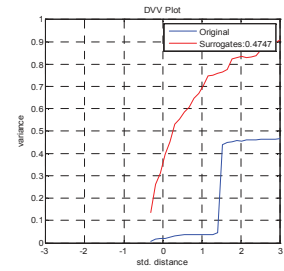
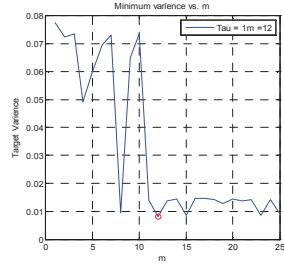
CH3



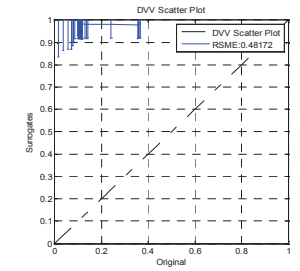
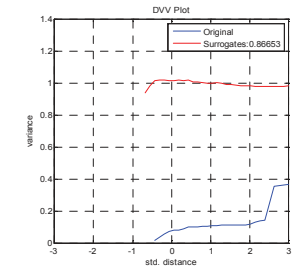
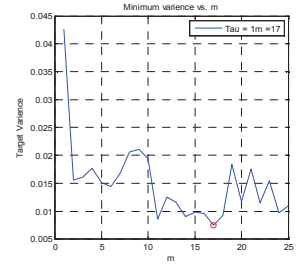
CH1



CH2

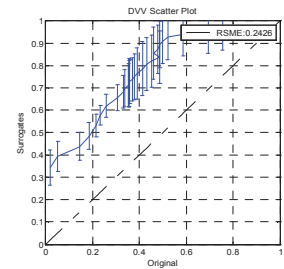
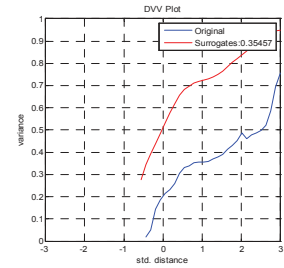


CH3

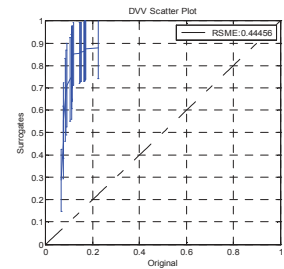
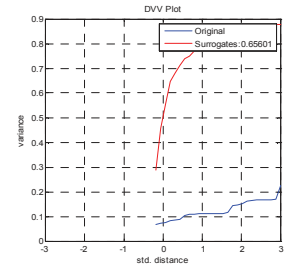


METHOD 3

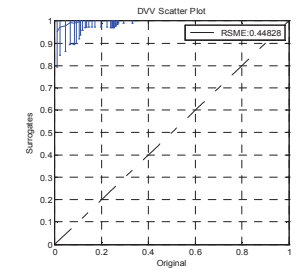
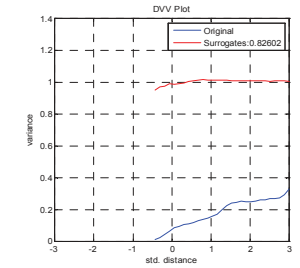
CH1

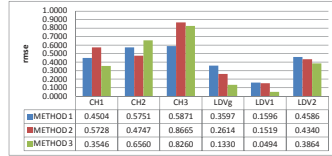
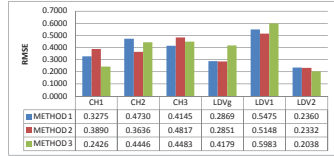


CH2

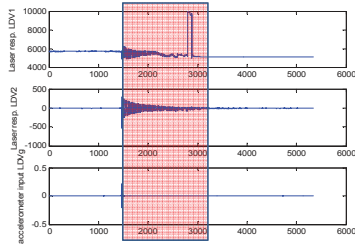


CH3

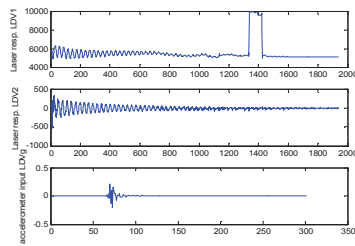




Data recorded LDV



Data analysed LDV



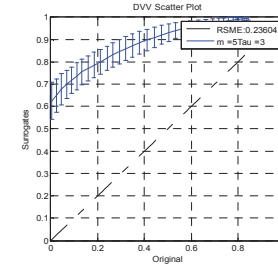
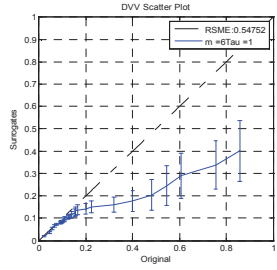
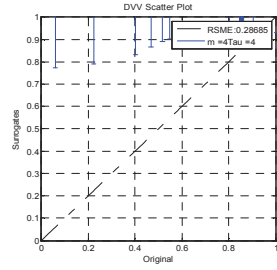
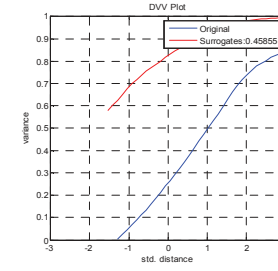
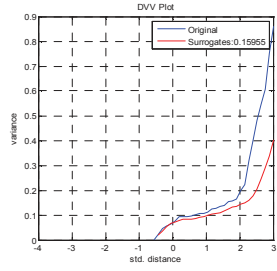
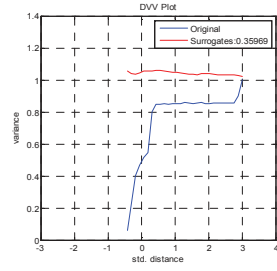
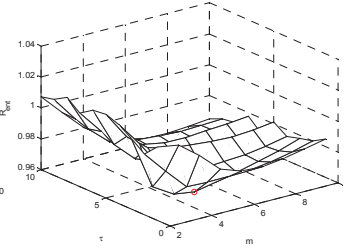
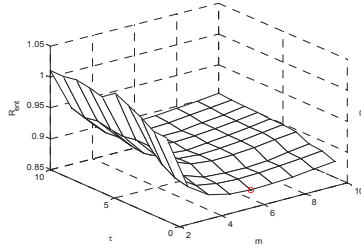
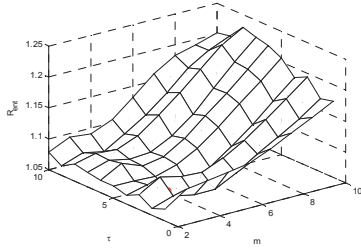
EXP

3

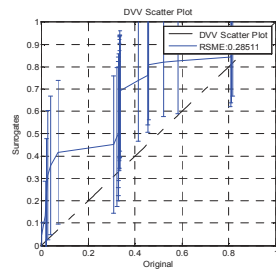
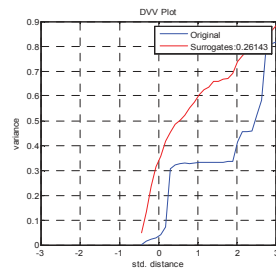
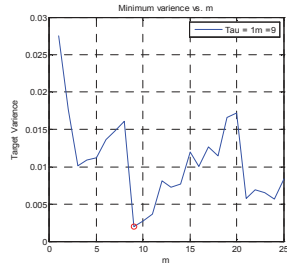
LDVg

LDV1

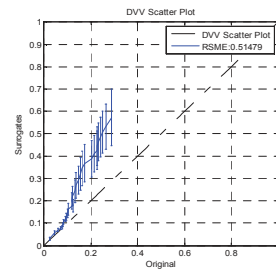
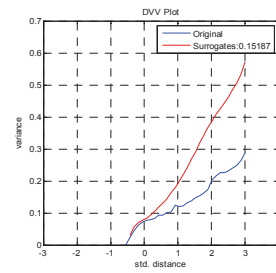
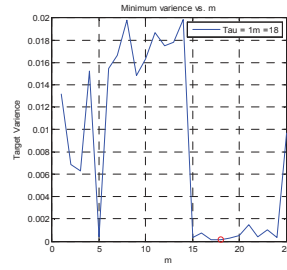
LDV2



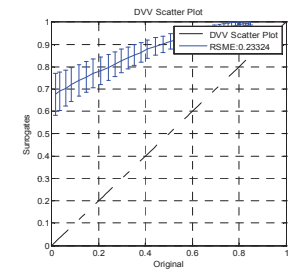
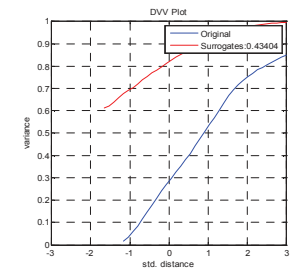
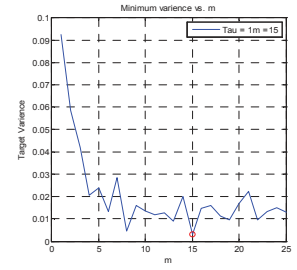
LDVg



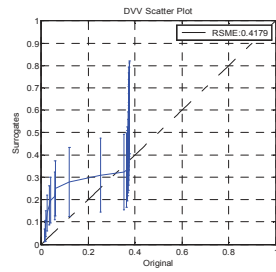
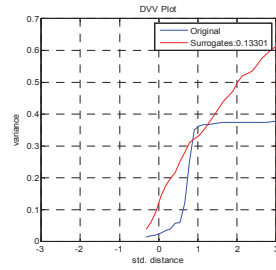
LDV1



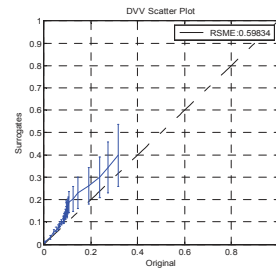
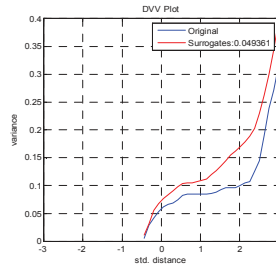
LDV2



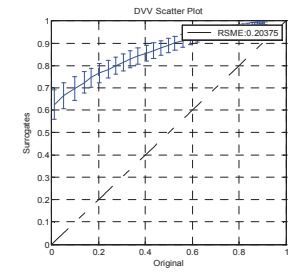
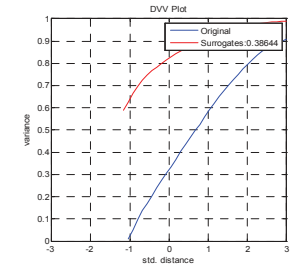
LDVg

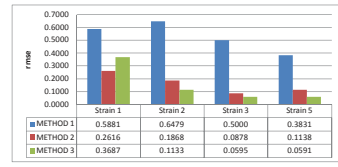
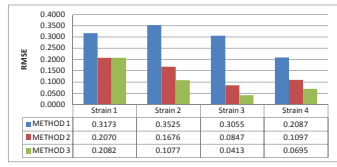
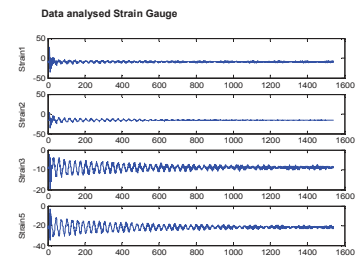
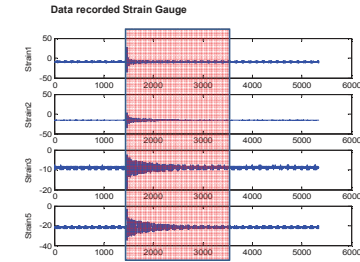


LDV1



LDV2

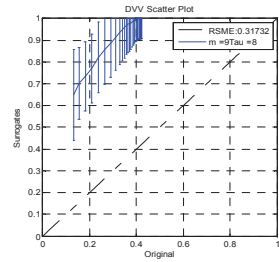
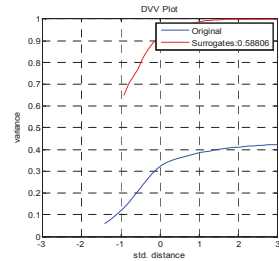
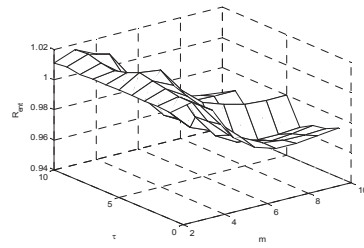




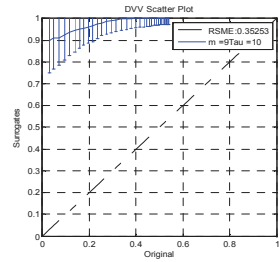
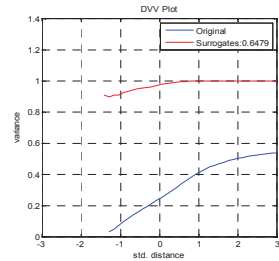
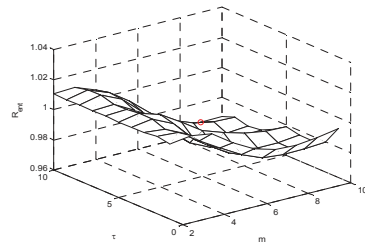
EXP

3

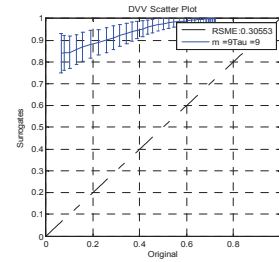
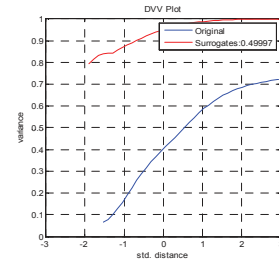
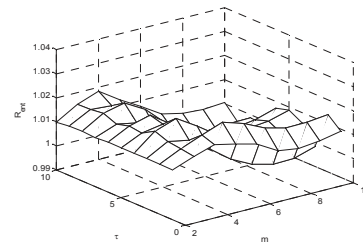
STRAIN 1



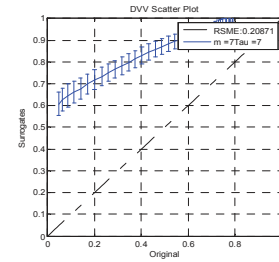
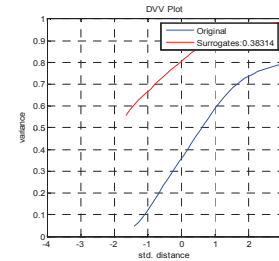
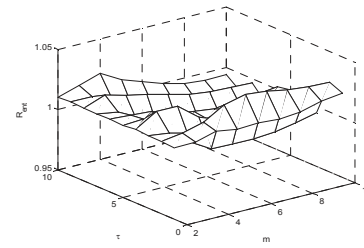
STRAIN 2

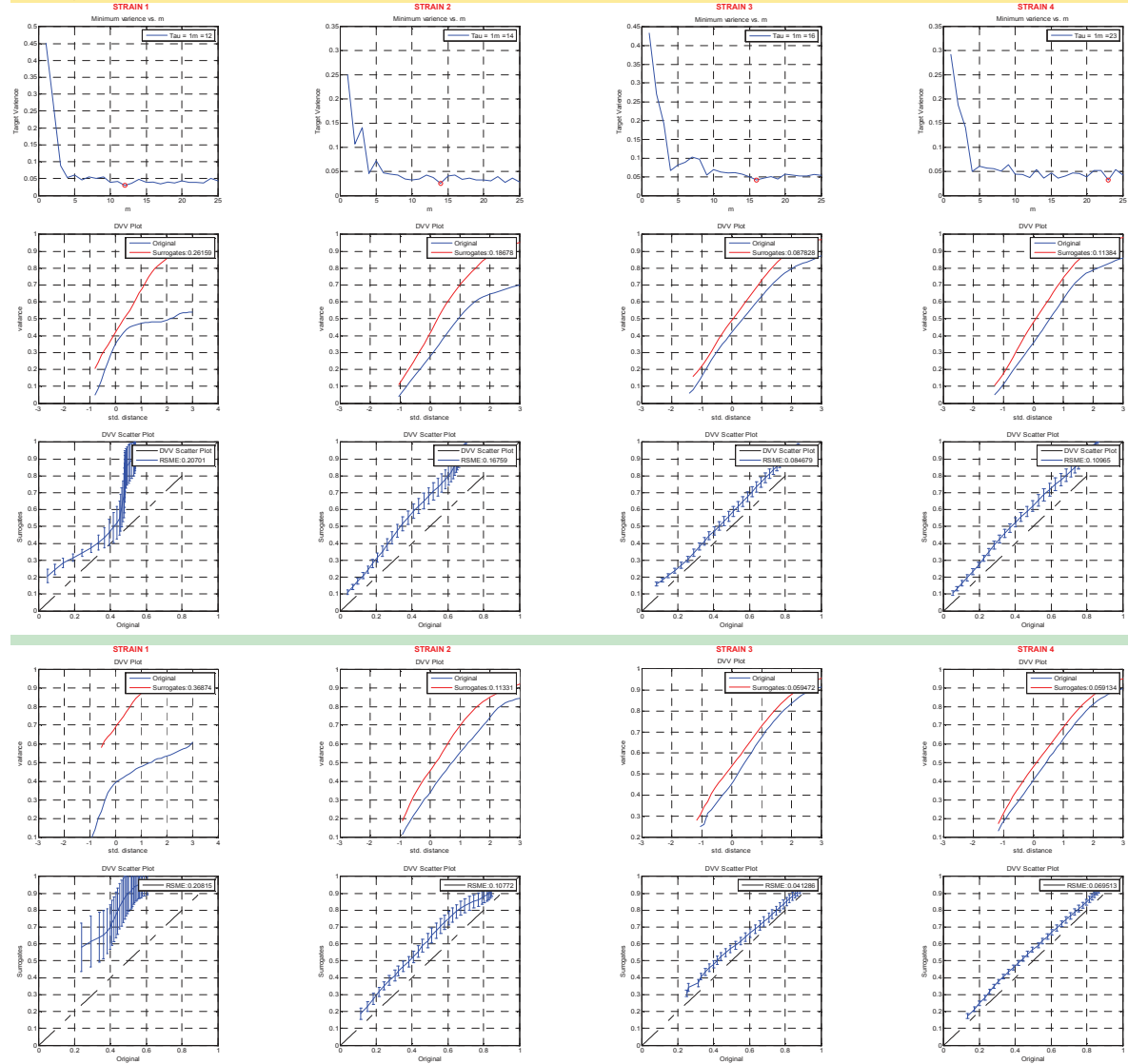


STRAIN 3



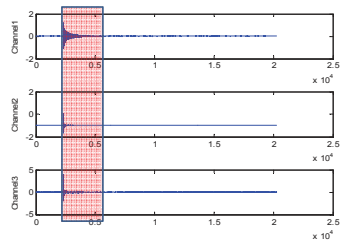
STRAIN 4



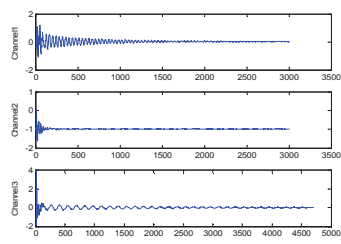


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
4	with knocks, no movement, best result	CH1	6	2	0.0636	0.1588	24	1	0.0935	0.2328	3	1	0.0541	0.2235
		CH2	6	2	0.2161	0.3215	17	1	0.1887	0.5295	3	1	0.1357	0.4681
		CH3	9	10	0.5314	0.3025	12	1	0.2107	0.1925	3	1	0.3073	0.2552
		LDVg	4	9	0.8576	0.5388	24	1	0.7246	0.5184	3	1	0.1639	0.3749
		LDV1	6	6	0.1467	0.1748	4	1	0.0136	0.1512	3	1	0.0432	0.1841
		LDV2	6	10	0.4526	0.2310	4	1	0.2622	0.1386	3	1	0.2510	0.1401
		Strain 1	7	7	0.2510	0.1820	19	1	0.2288	0.1852	3	1	0.2072	0.1376
		Strain 2	7	7	0.1704	0.1744	22	1	0.1201	0.1642	3	1	0.0469	0.1272
		Strain 3	7	7	0.3900	0.1977	24	1	0.2027	0.1712	3	1	0.1166	0.1391
		Strain 4	6	7	0.3486	0.1778	24	1	0.1359	0.1640	3	1	0.0758	0.1462

Data recorded 3D Accelerometer

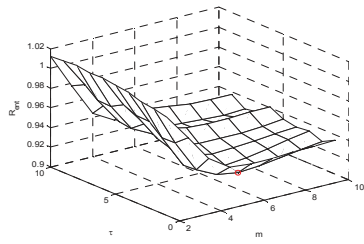


Data analysed 3D Accelerometer

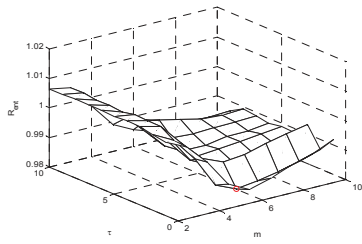


METHOD 1

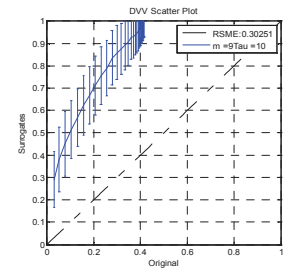
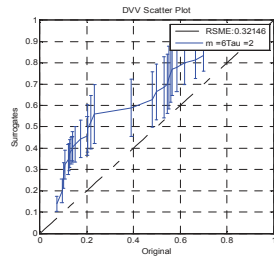
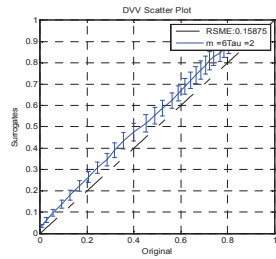
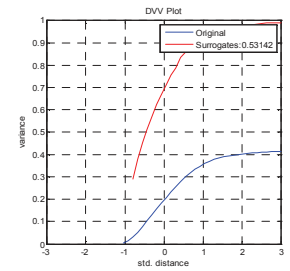
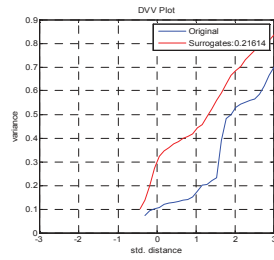
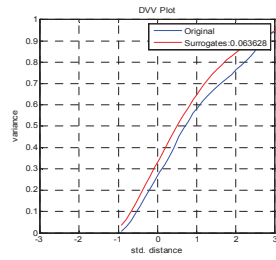
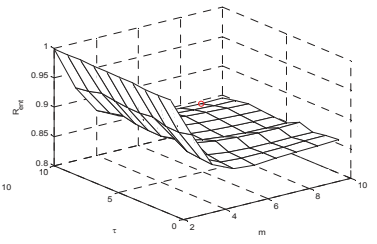
CH1



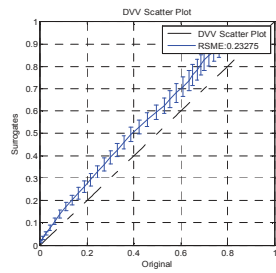
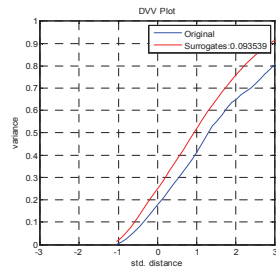
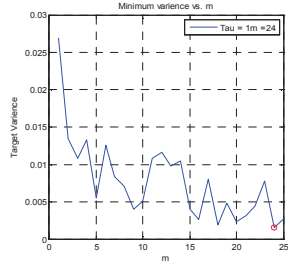
CH2



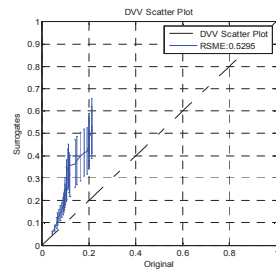
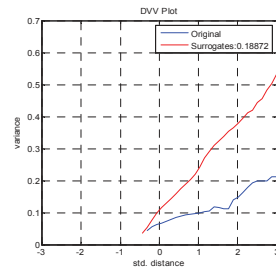
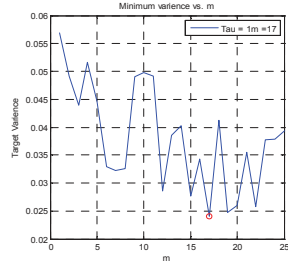
CH3



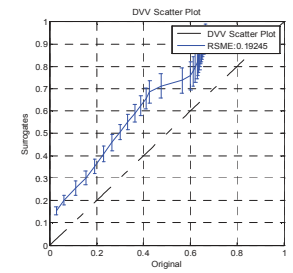
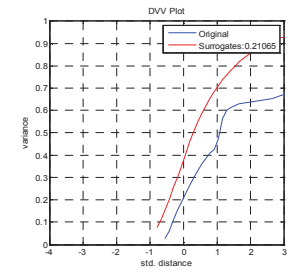
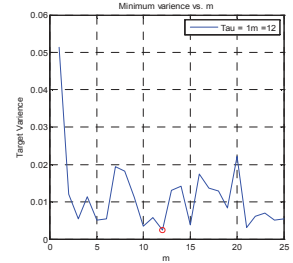
CH1



CH2

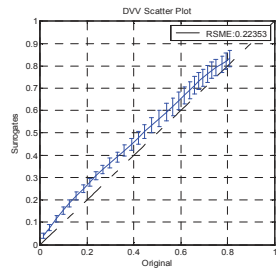
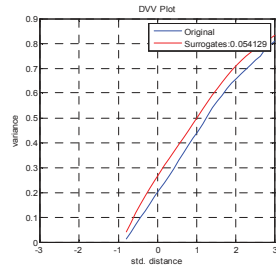


CH3

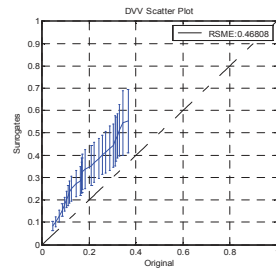
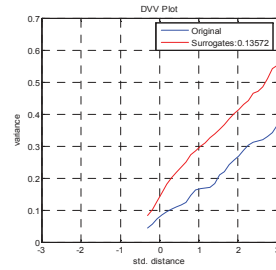


METHOD 3

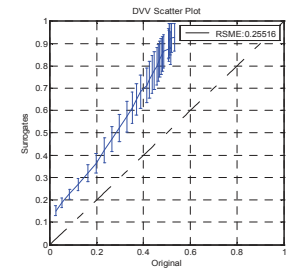
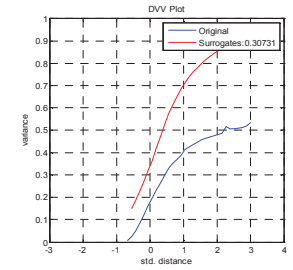
CH1

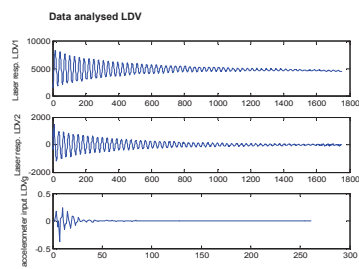
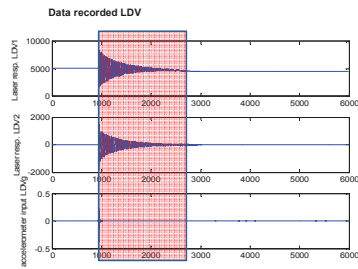
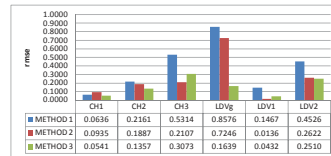
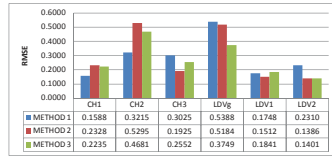


CH2



CH3





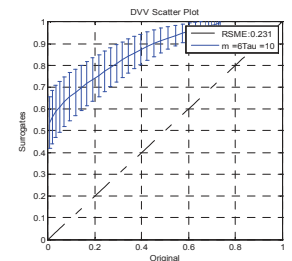
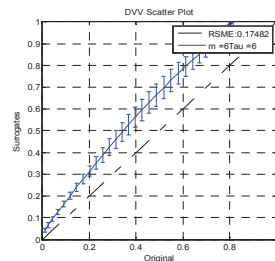
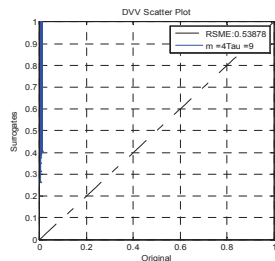
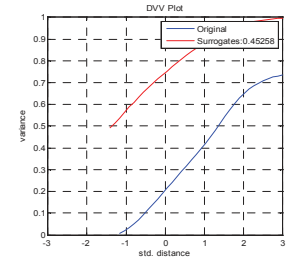
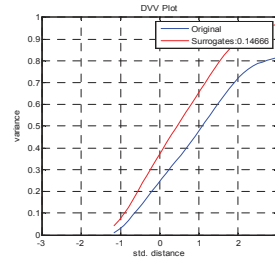
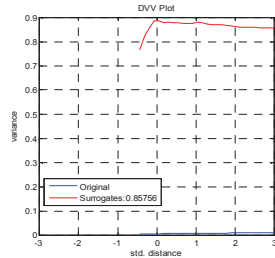
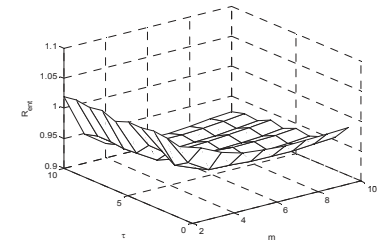
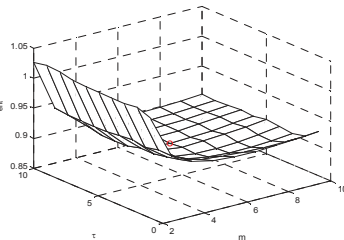
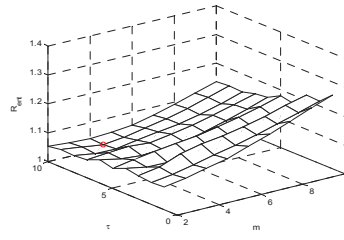
EXP

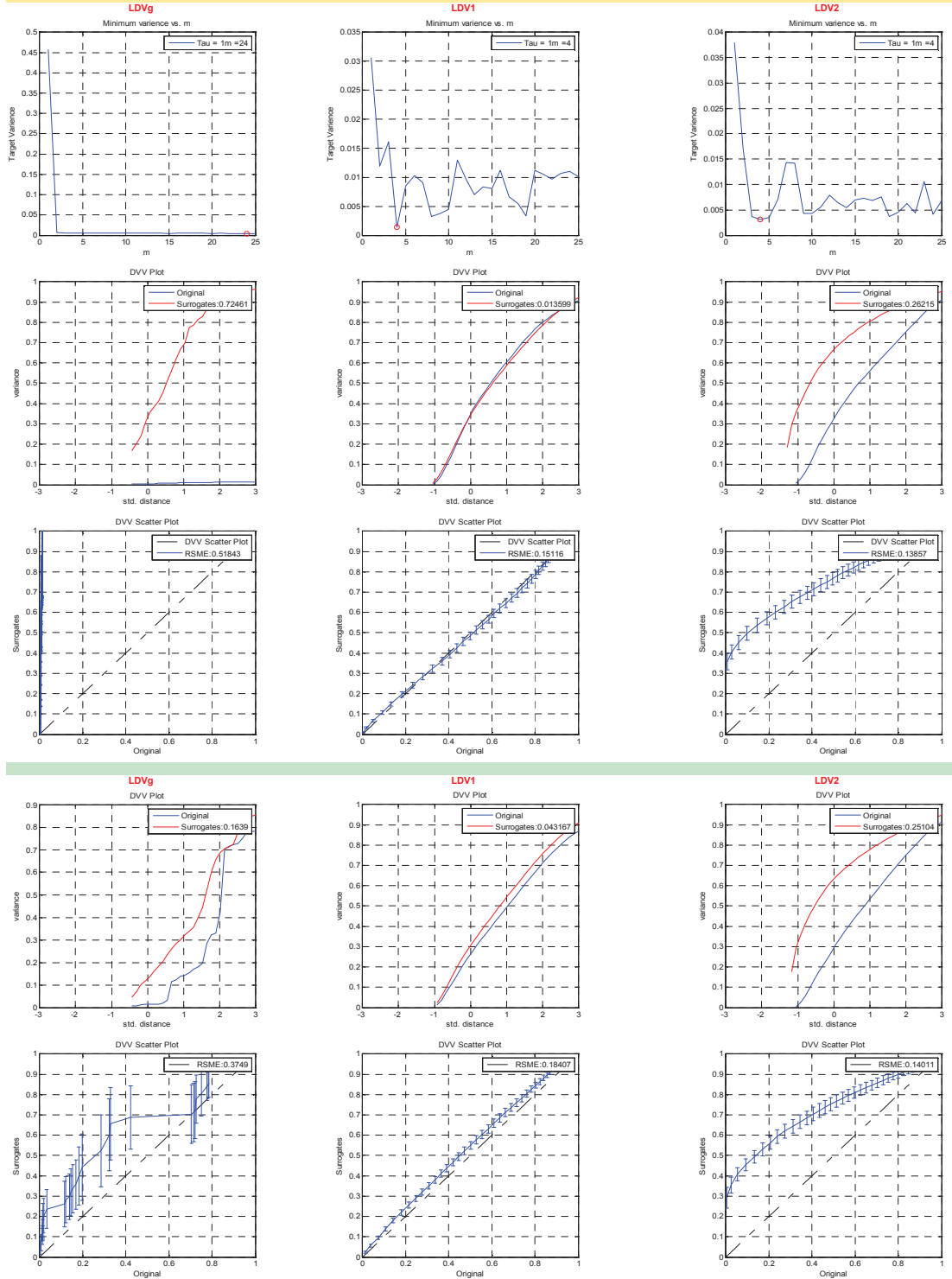
4

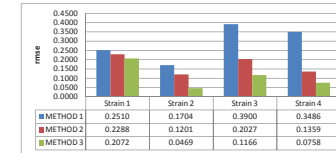
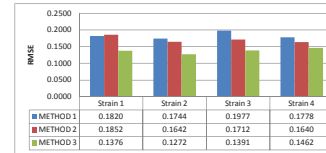
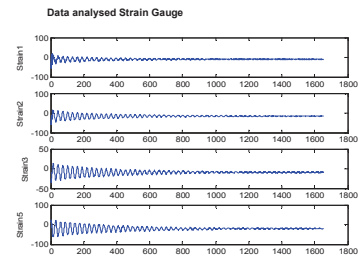
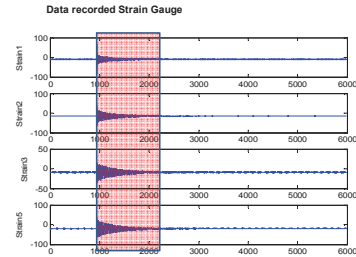
LDVg

LDV1

LDV2

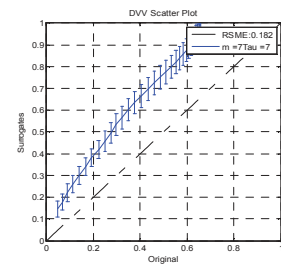
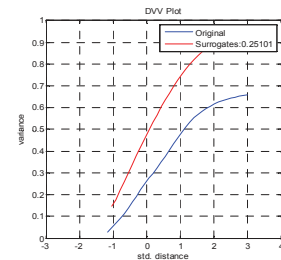
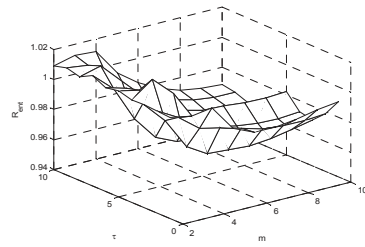




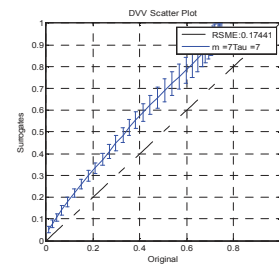
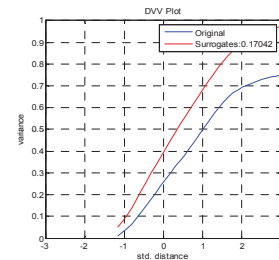
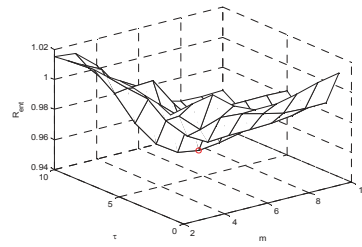


EXP 4

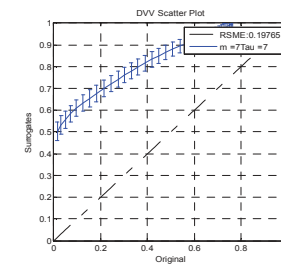
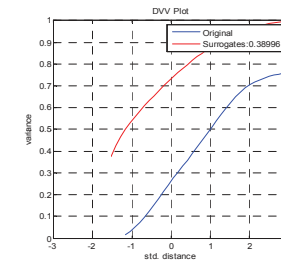
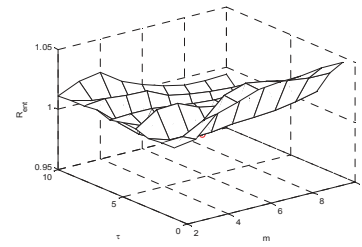
STRAIN 1



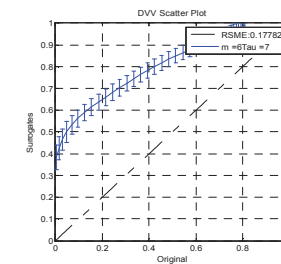
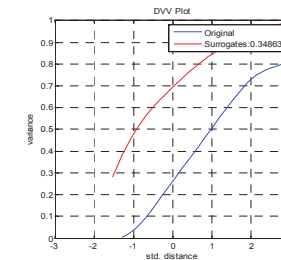
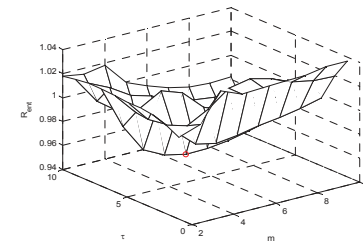
STRAIN 2

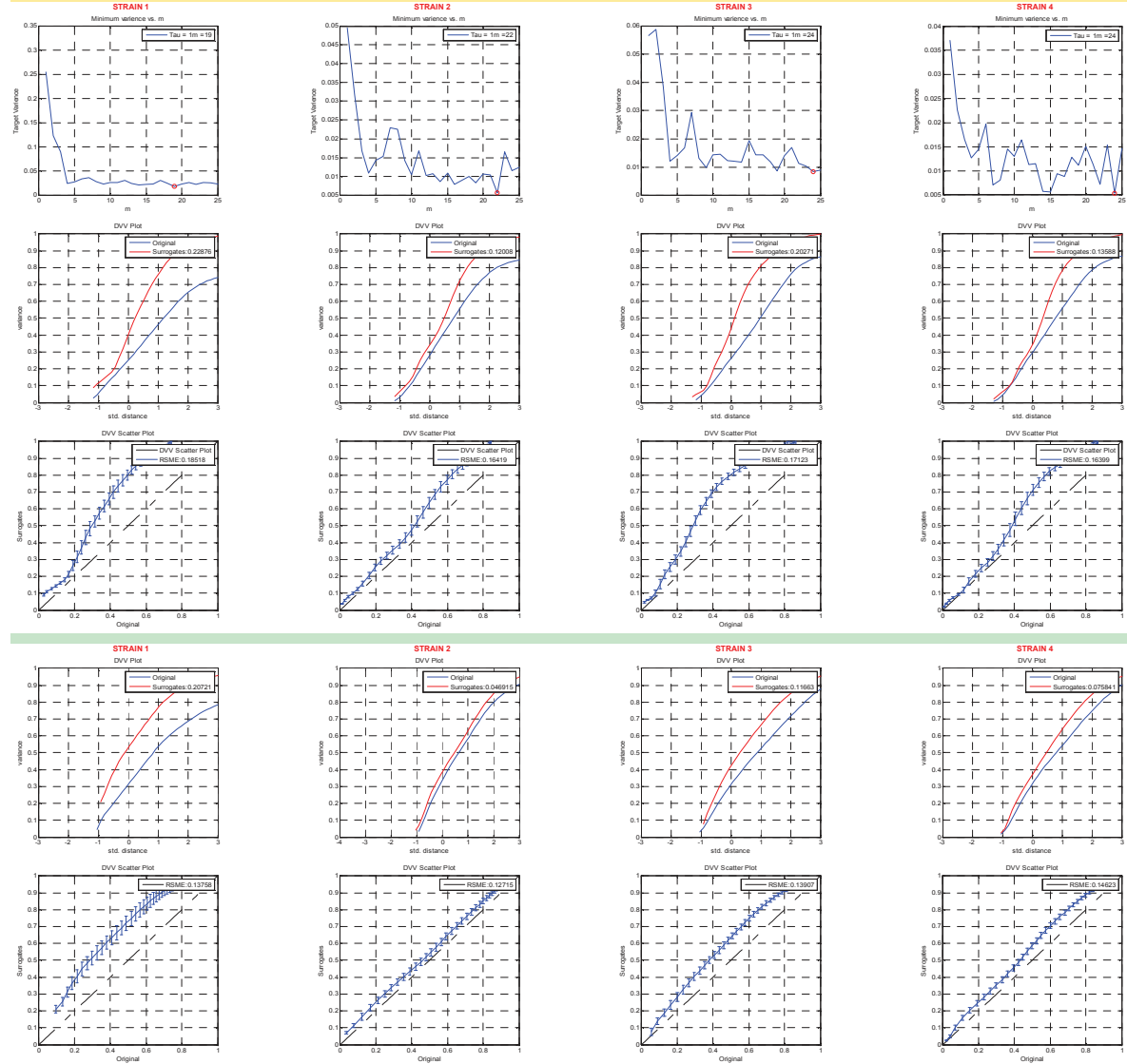


STRAIN 3



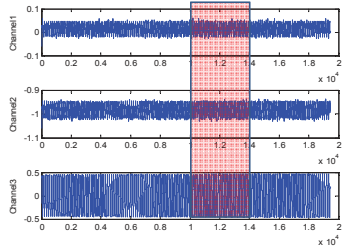
STRAIN 4



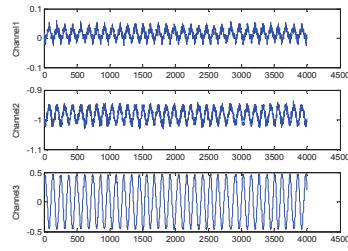


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
5	Harmonic resonance 4.4Hz Focus at accelerometer	CH1	6	10	0.0572	0.1473	13	1	0.0206	0.0943	3	1	0.0154	0.0872
		CH2	6	9	0.2603	0.2511	18	1	0.0178	0.1082	3	1	0.0139	0.1140
		CH3	3	9	0.0311	0.2153	7	1	0.0025	0.1630	3	1	0.0027	0.1741
		LDV	6	9	0.1335	0.2412	15	1	0.0863	0.1701	3	1	0.0595	0.1685
		LDV1	4	1	0.0070	0.1382	4	1	0.0090	0.1386	3	1	0.0031	0.1345
		LDV2	10	10	0.1712	0.1689	15	1	0.1024	0.1561	3	1	0.1424	0.1490
		Strain 1	10	9	0.1363	0.1717	4	1	0.1029	0.1583	3	1	0.1087	0.1381
		Strain 2	10	9	0.1358	0.1728	14	1	0.1973	0.2004	3	1	0.1003	0.1408
		Strain 3	10	9	0.1342	0.1726	4	1	0.1294	0.1608	3	1	0.1163	0.1417
		Strain 4	10	9	0.1340	0.1733	15	1	0.2504	0.2158	3	1	0.1123	0.1423

Data recorded 3D Accelerometer

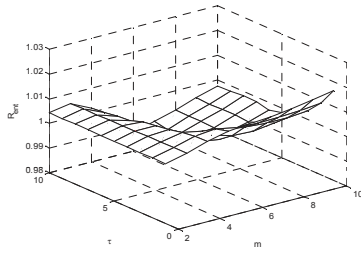


Data analysed 3D Accelerometer

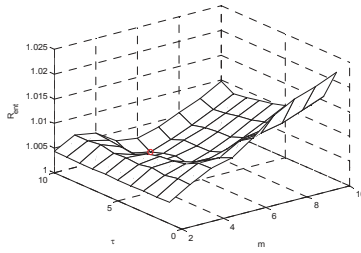


METHOD 1

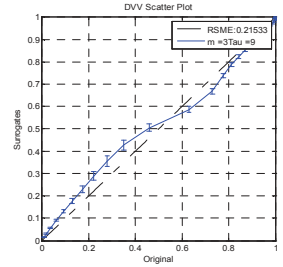
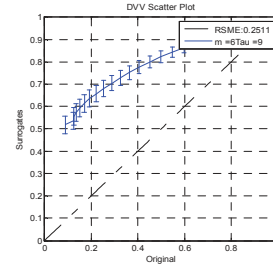
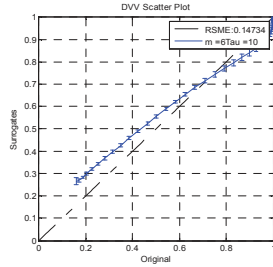
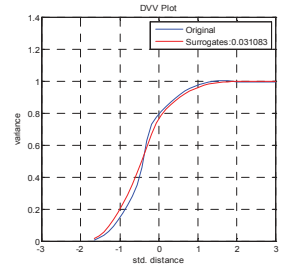
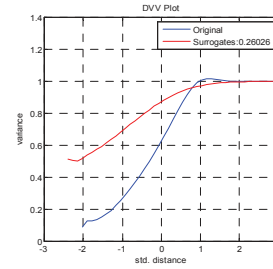
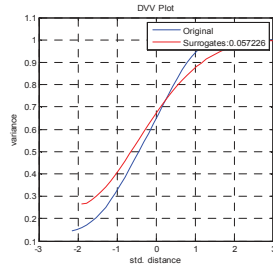
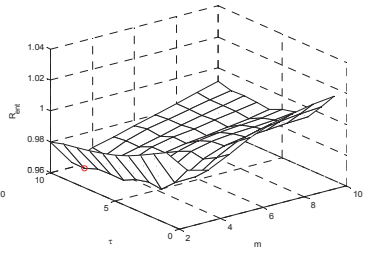
CH1



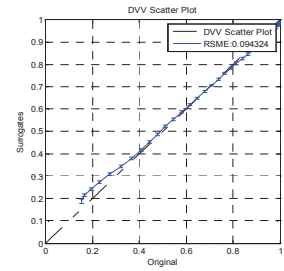
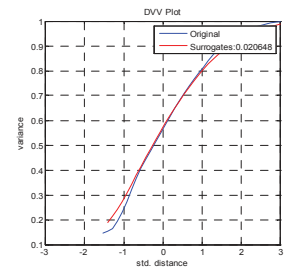
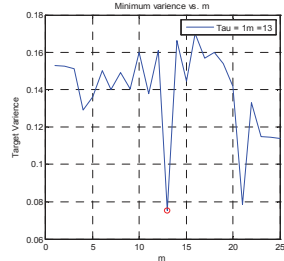
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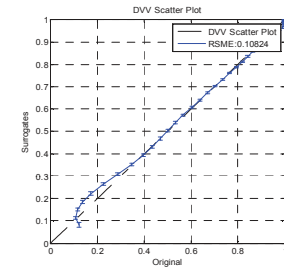
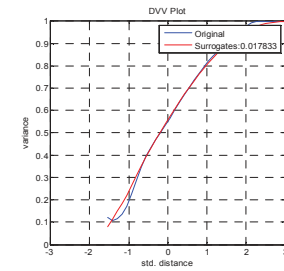
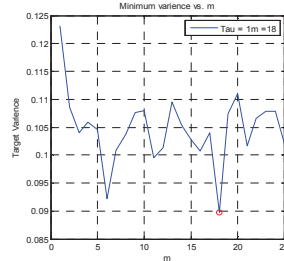
CH3



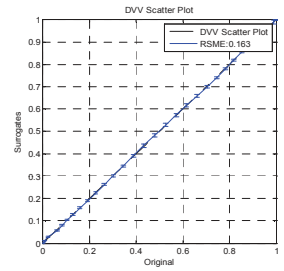
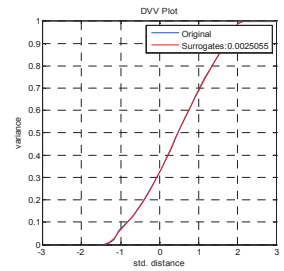
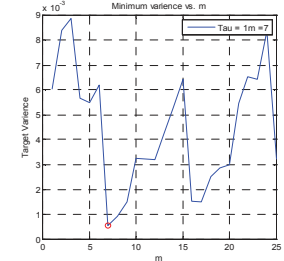
CH1



CH2

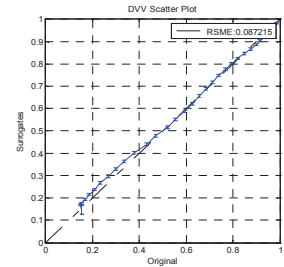
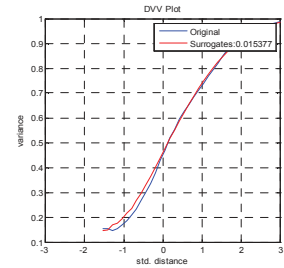


CH3

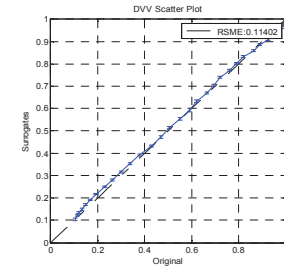
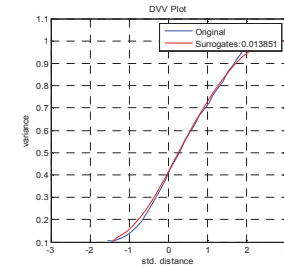


METHOD 3

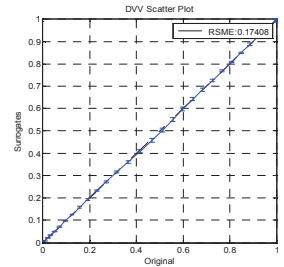
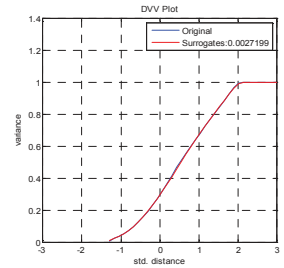
CH1

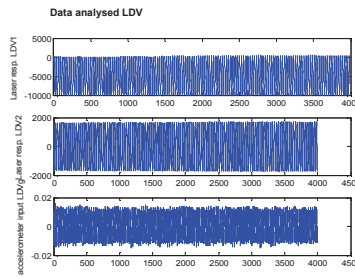
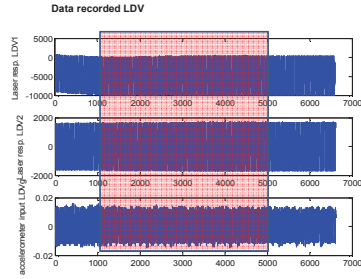
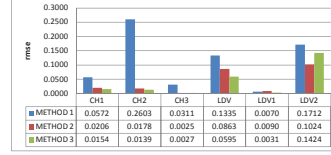
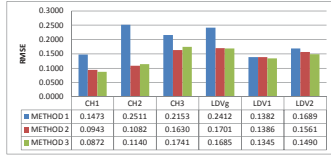


CH2



CH3





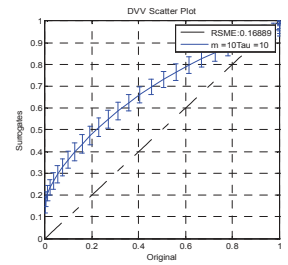
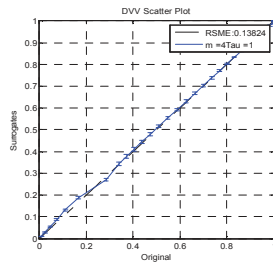
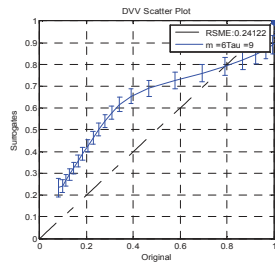
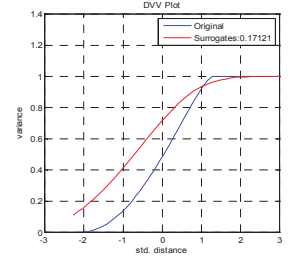
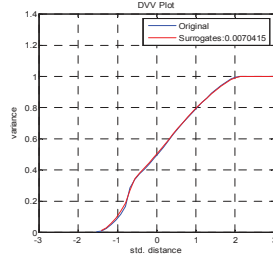
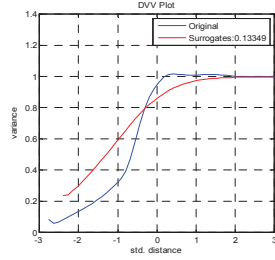
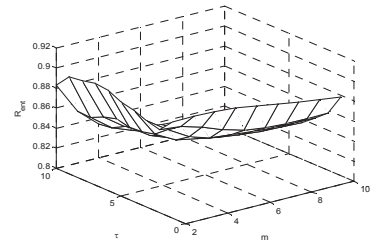
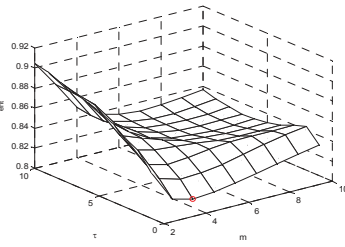
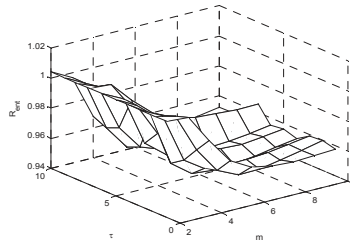
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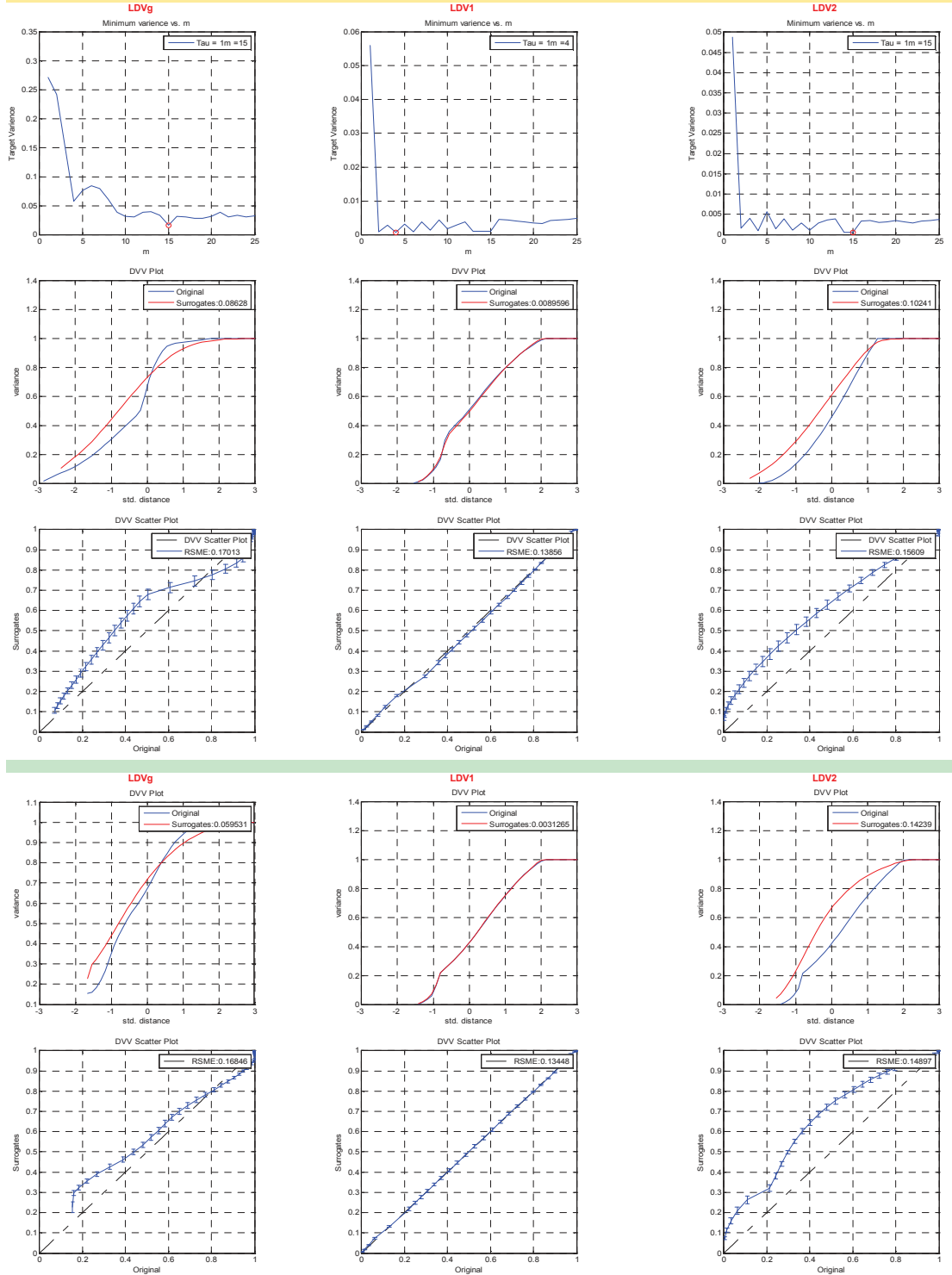
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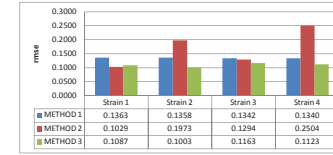
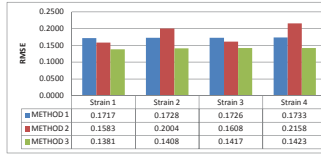
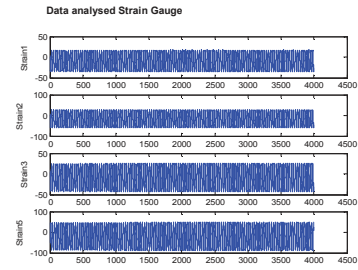
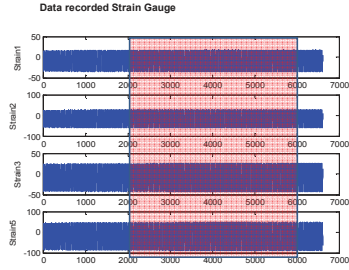
LDVg

LDV1

LDV2

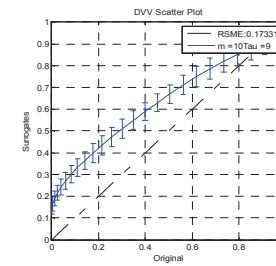
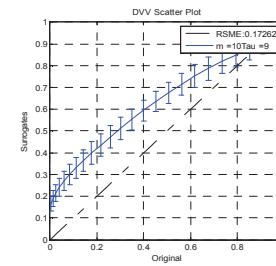
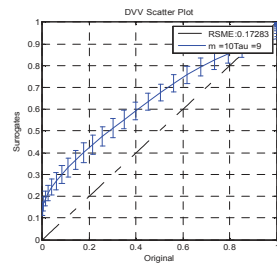
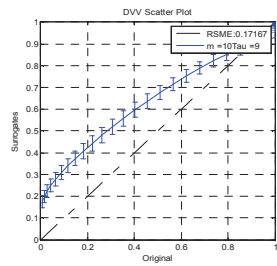
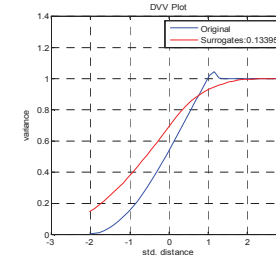
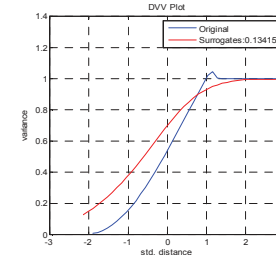
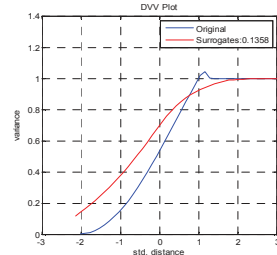
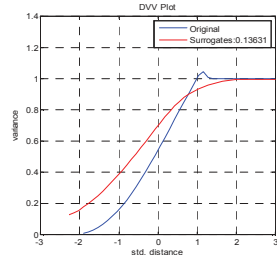
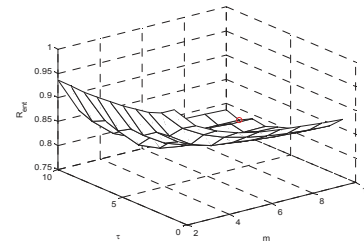
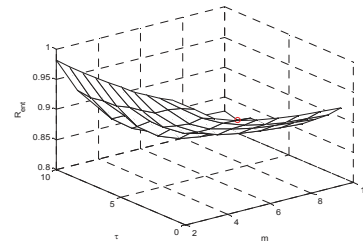
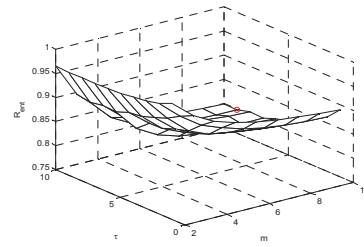
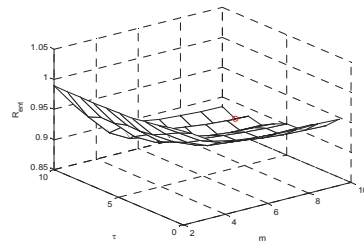


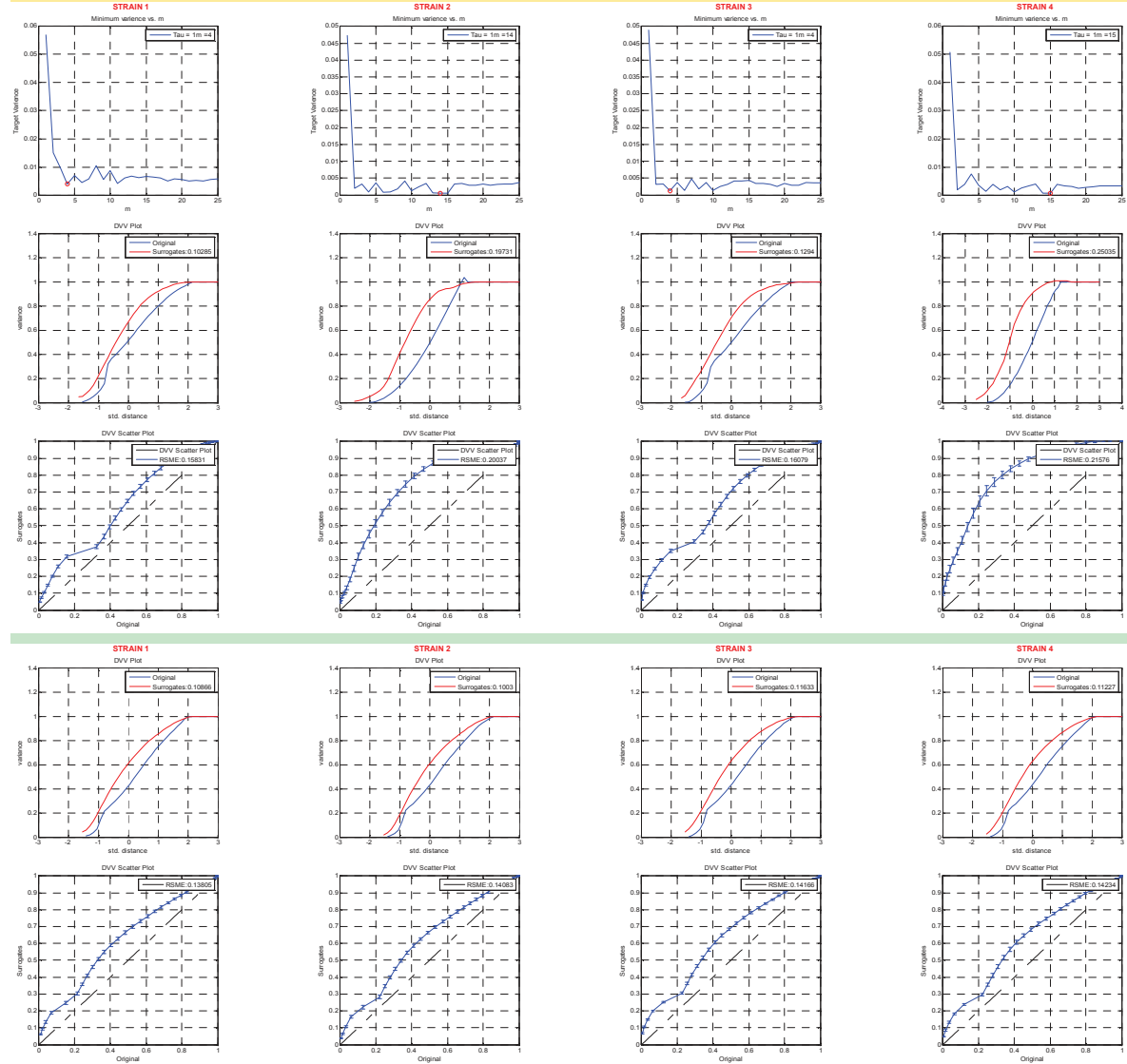




affected by change in amplitude

EXP 5 STRAIN 1 STRAIN 2 STRAIN 3 STRAIN 4

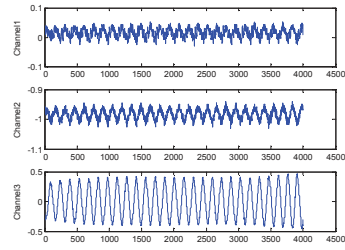
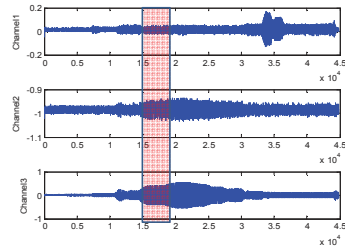




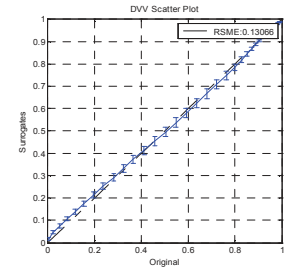
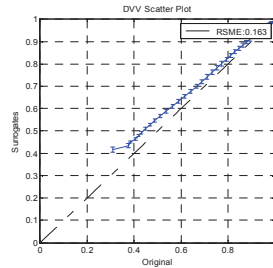
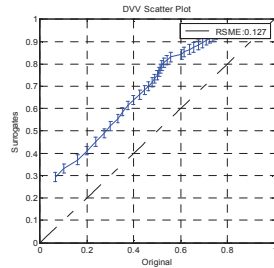
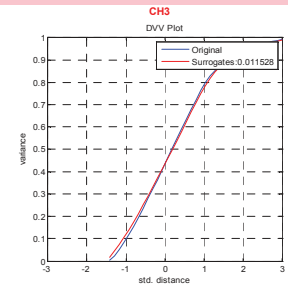
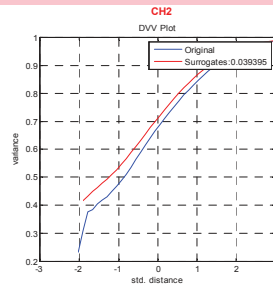
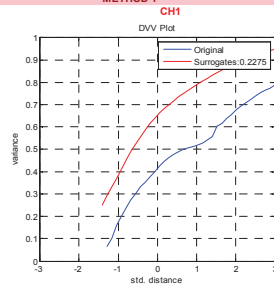
EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
6	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0 Hz 5.5 Hz 6.0 Hz 6.5 Hz	CH1	7	10	0.2275	0.1270	5	1	0.0798	0.1487	3	1	0.0232	0.1595
		CH2	6	10	0.0394	0.1630	25	1	0.0428	0.1091	3	1	0.0170	0.0370
		CH3	5	10	0.0115	0.1307	13	1	0.0120	0.1562	3	1	0.0093	0.1984
		LDVg	9	9	0.2784	0.2324	23	1	0.1238	0.0992	3	1	0.0457	0.0861
		LDV1	6	10	0.1399	0.1412	8	1	0.0647	0.1352	3	1	0.0227	0.1566
		LDV2	10	10	0.3261	0.1723	4	1	0.2445	0.1365	3	1	0.2419	0.1441
	Focus at accelerometer	Strain 1	10	9	0.4033	0.2160	8	1	0.2391	0.1495	3	1	0.2333	0.1283
		Strain 2	9	7	0.2962	0.1651	21	1	0.2939	0.1699	3	1	0.2085	0.1367
		Strain 3	8	7	0.3948	0.2094	20	1	0.4380	0.2272	3	1	0.2630	0.1443
		Strain 4	8	7	0.3774	0.1991	5	1	0.2741	0.1440	3	1	0.2032	0.1226

Data recorded 3D Accelerometer

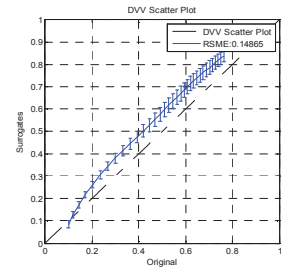
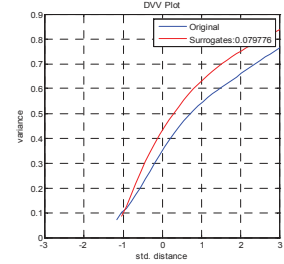
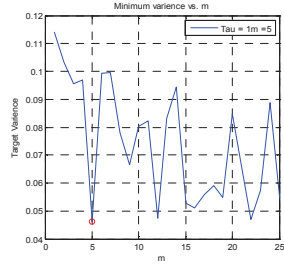
*Optimum embedding parameter m and time lag tau are determined as per EXP6b interval



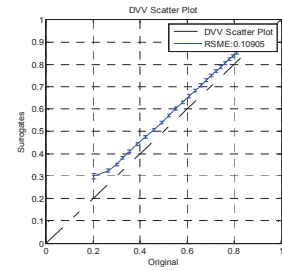
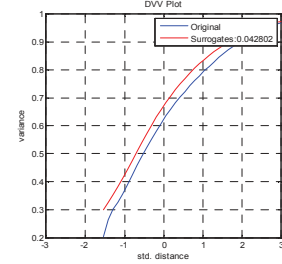
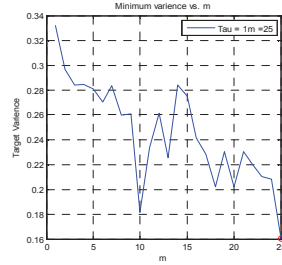
METHOD 1



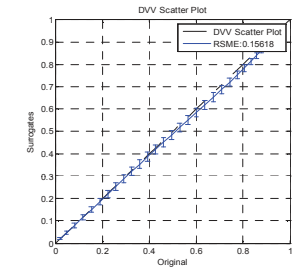
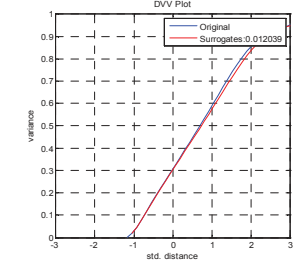
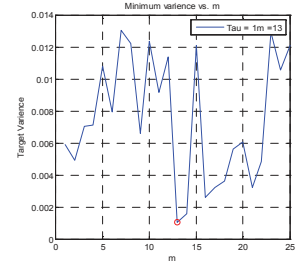
CH1



CH2

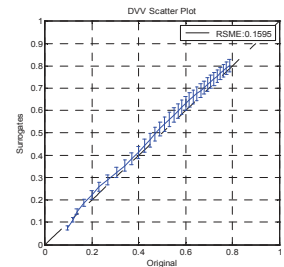
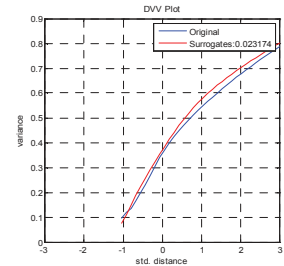


CH3

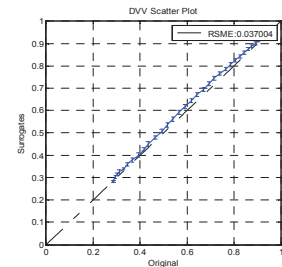
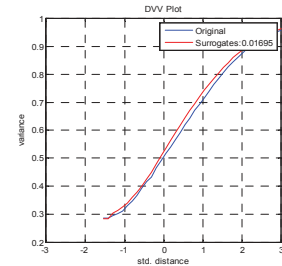


METHOD 3

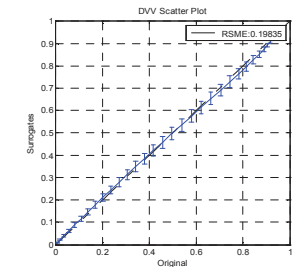
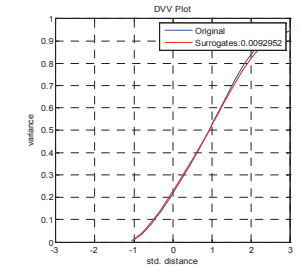
CH1

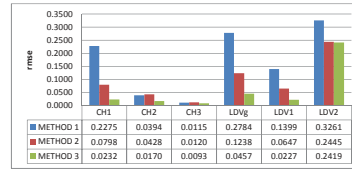
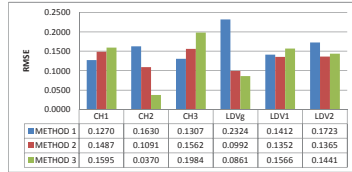


CH2

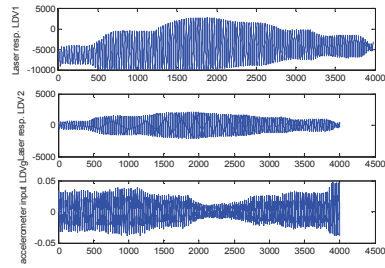
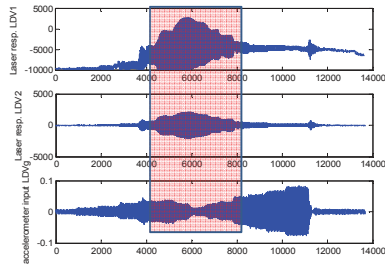


CH3





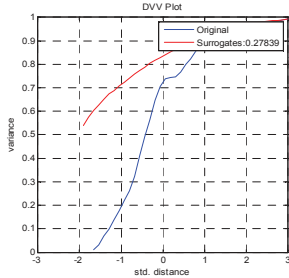
Data recorded LDV



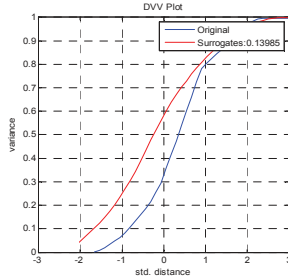
EXP

6

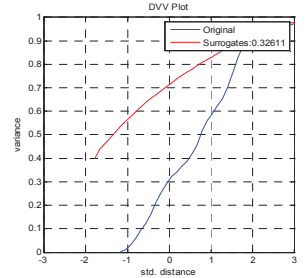
LDVg



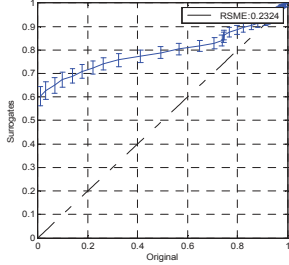
LDV1



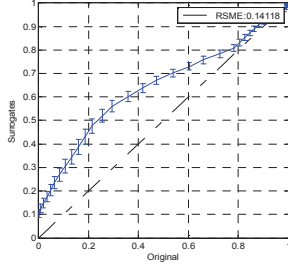
LDV2



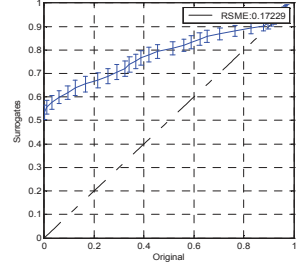
DVV Scatter Plot



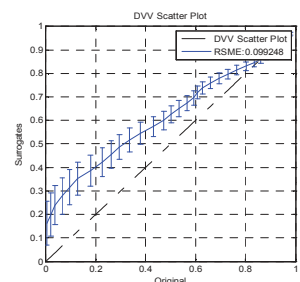
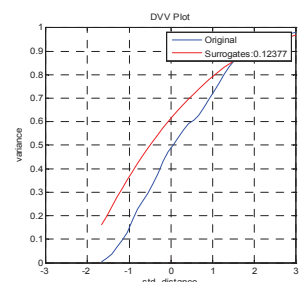
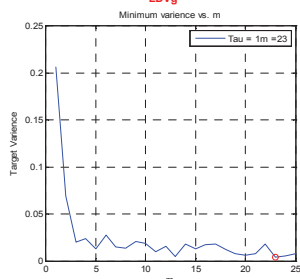
DVV Scatter Plot



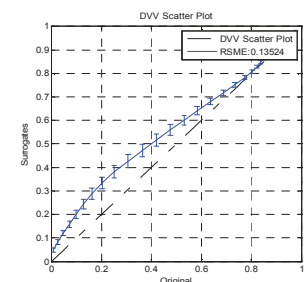
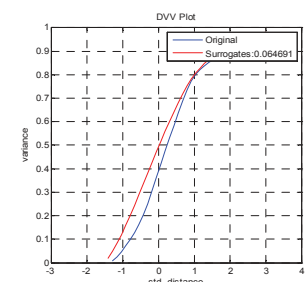
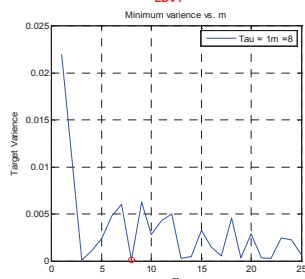
DVV Scatter Plot



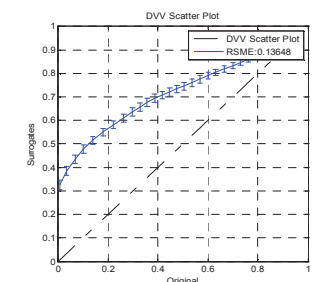
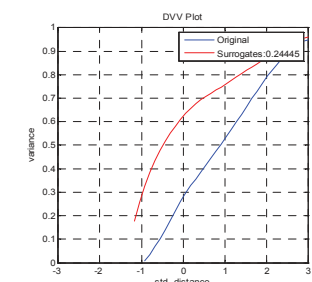
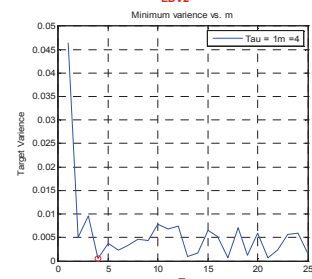
LDVg



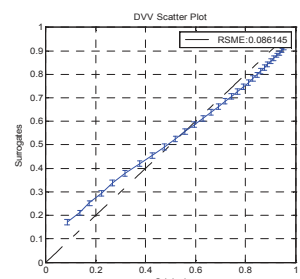
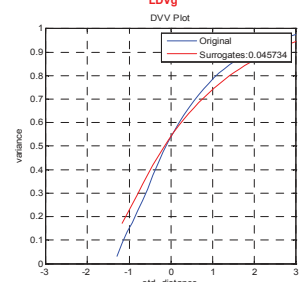
LDV1



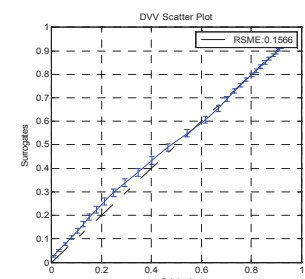
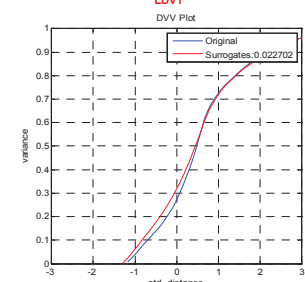
LDV2



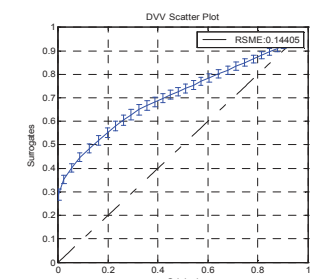
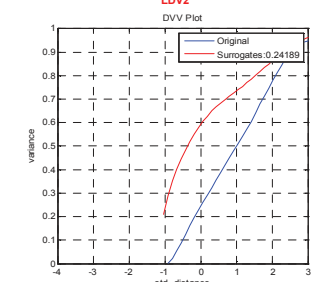
LDVg



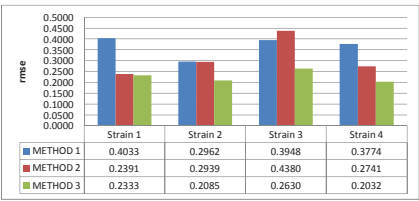
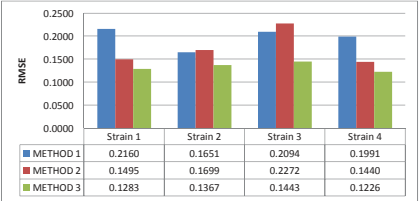
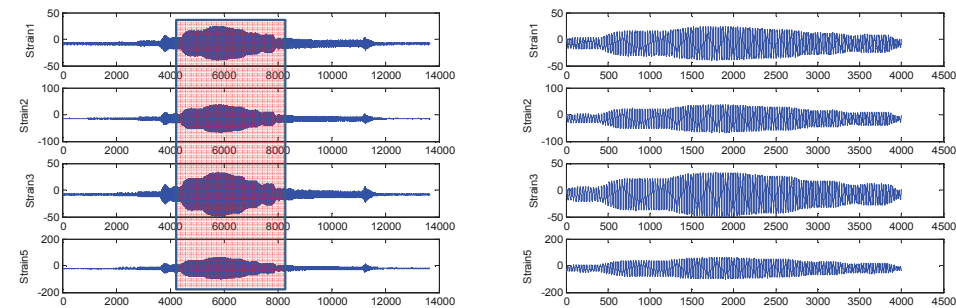
LDV1



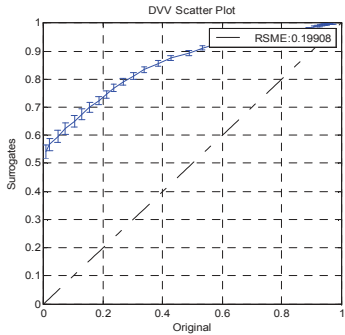
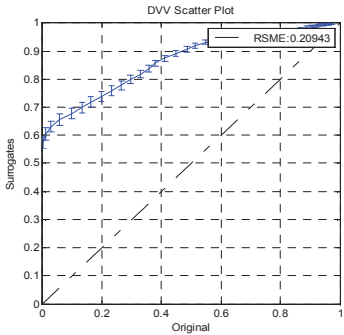
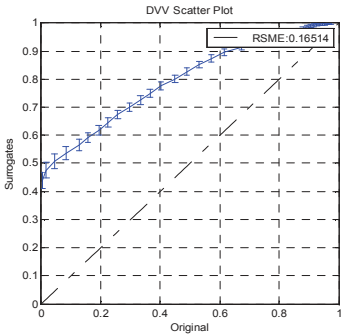
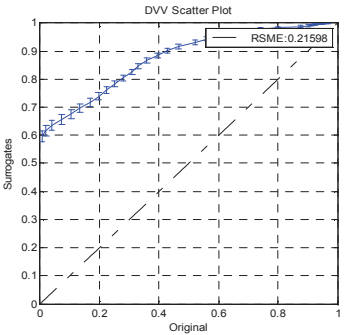
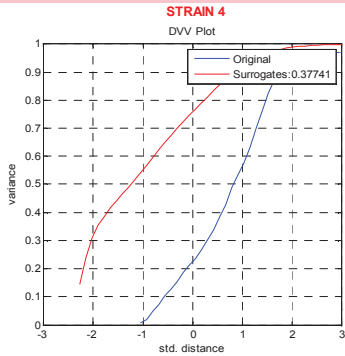
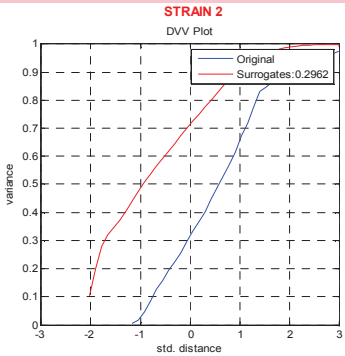
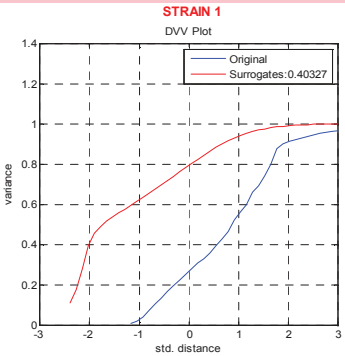
LDV2

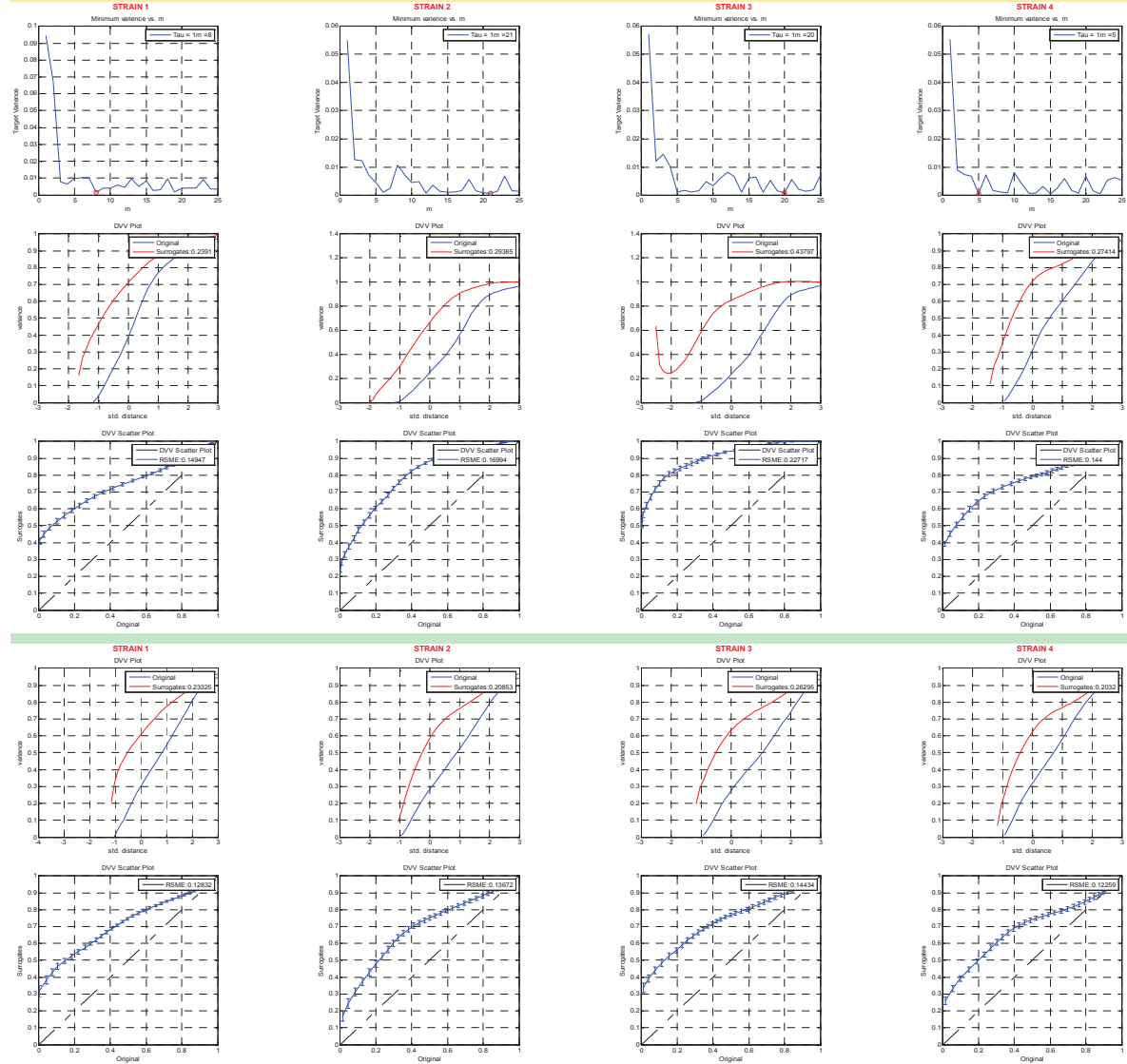


Data recorded Strain Gauge



EXP 6

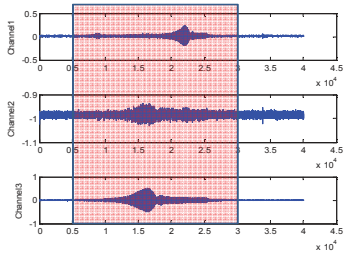




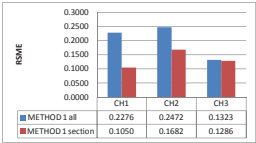
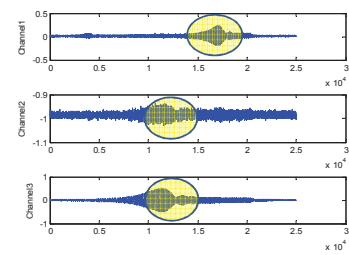
EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best r	r sme	RSME	calc m	r	r sme	RSME	set m	set r	r sme	RSME	
7	Loading Sine sweep 2.0 Hz 6.0 Hz 60 sec Focus at accelerometer	CH1	4	10	0.0464	0.2276	11	1	0.0367	0.2039	3	1	0.0600	0.3182
		CH2	2	6	0.0578	0.2472	19	1	0.0725	0.1439	3	1	0.0688	0.1016
		CH3	4	9	0.0413	0.1323	25	1	0.0384	0.1946	3	1	0.0041	0.2724
		LDVg	10	2	0.3604	0.2572	12	1	0.1016	0.1091	3	1	0.0431	0.1088
		LDV1	6	6	0.3849	0.2246	10	1	0.0405	0.1303	3	1	0.0128	0.1705
		LDV2	8	10	0.0475	0.1453	12	1	0.3114	0.1656	3	1	0.2466	0.1656
		Strain 1	10	10	0.1344	0.1098	7	1	0.2157	0.1395	3	1	0.2384	0.1329
		Strain 2	10	9	0.1039	0.1309	18	1	0.2502	0.1598	3	1	0.1746	0.1363
		Strain 3	10	9	0.3815	0.2012	19	1	0.3918	0.2048	3	1	0.2432	0.1374
		Strain 4	10	9	0.3811	0.1996	23	1	0.3339	0.1717	3	1	0.2277	0.1420

METHOD 1 for data section			
best m	best r	r sme	RSME
4	10	0.0063	0.1050
2	6	0.0197	0.1682
4	9	0.0260	0.1286

Data recorded 3D Accelerometer



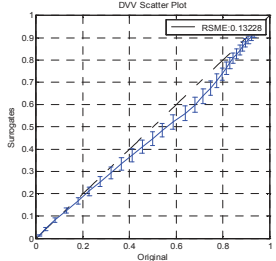
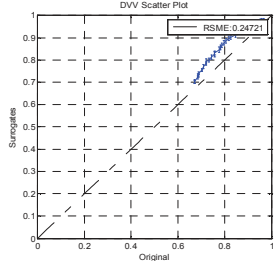
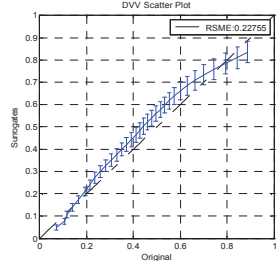
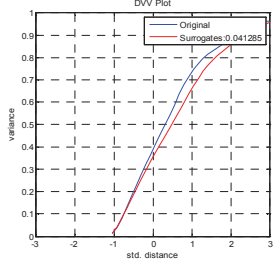
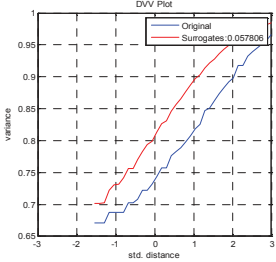
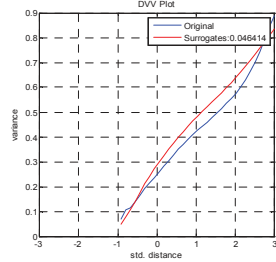
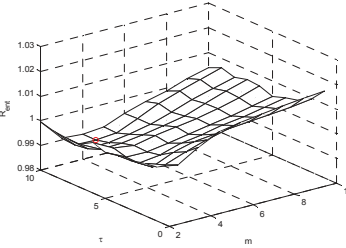
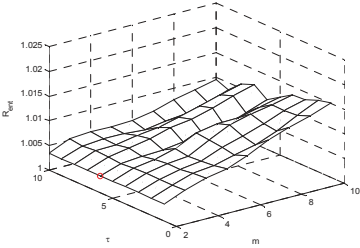
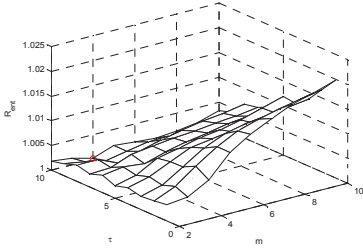
Data analysed 3D Accelerometer



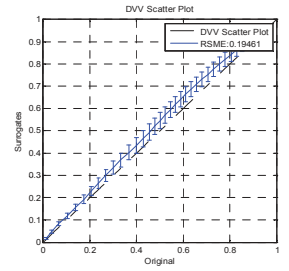
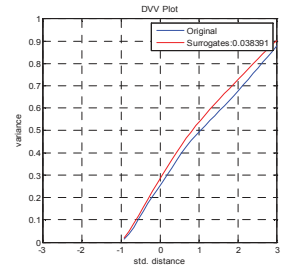
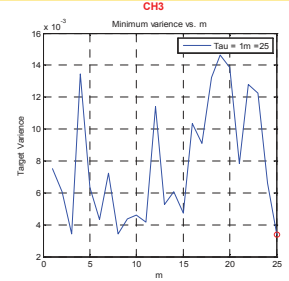
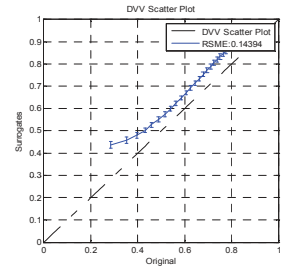
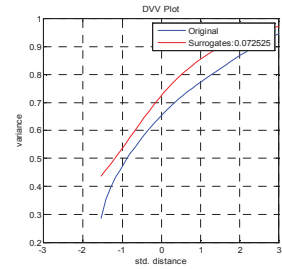
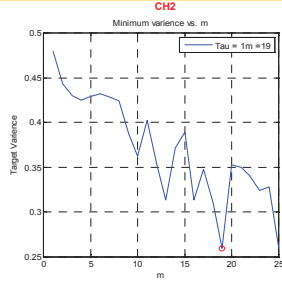
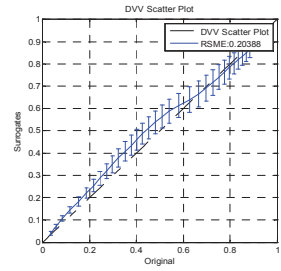
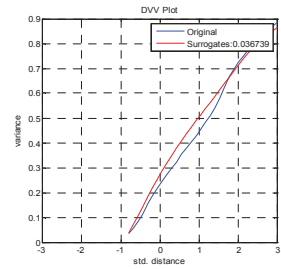
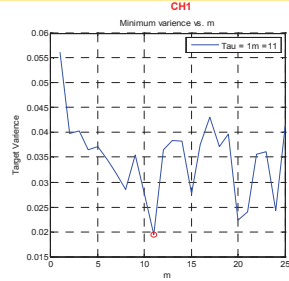
METHOD 1
CH1

CH2

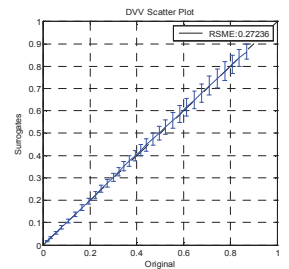
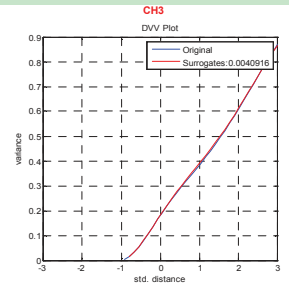
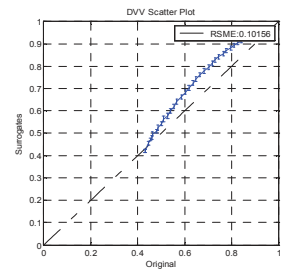
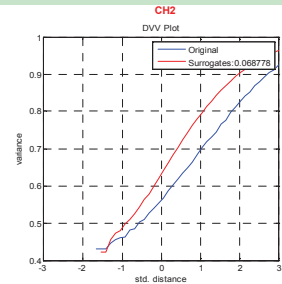
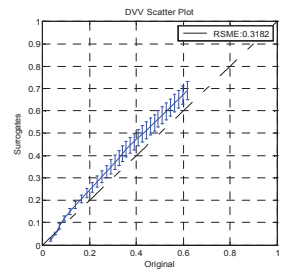
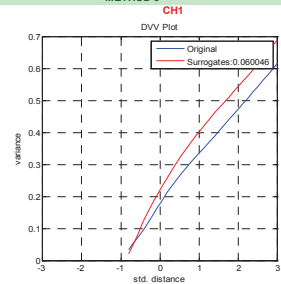
CH3

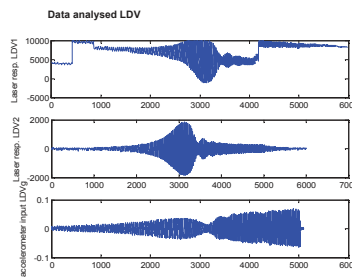
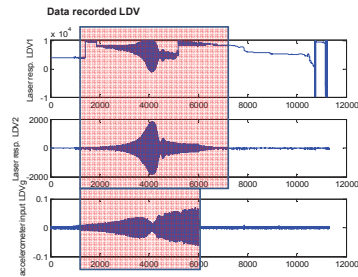
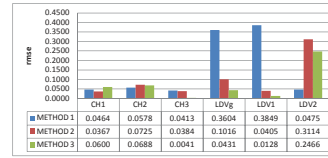
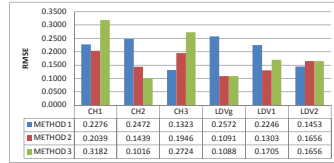


METHOD 2

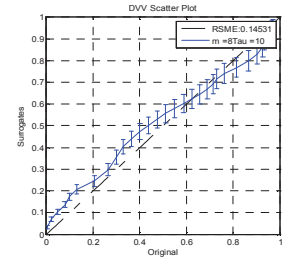
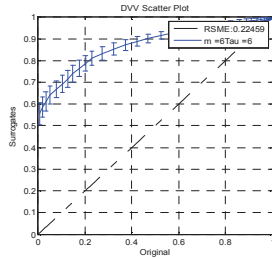
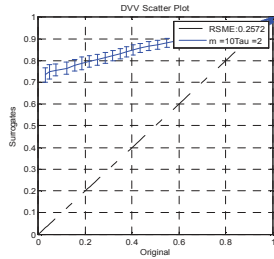
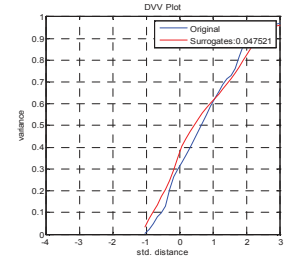
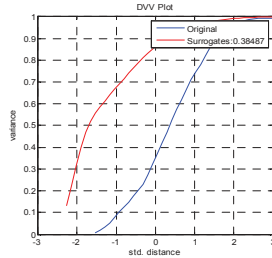
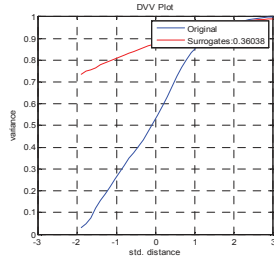
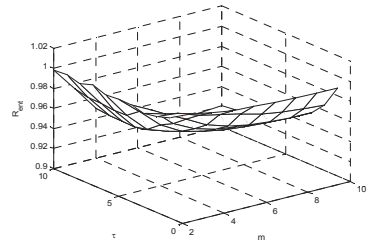
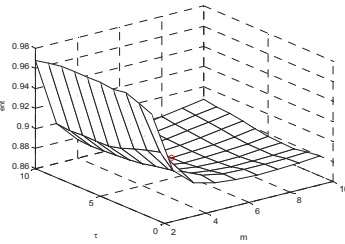
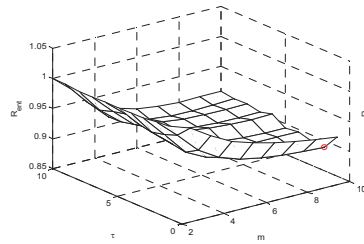


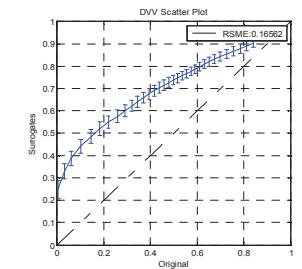
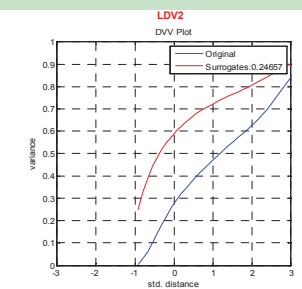
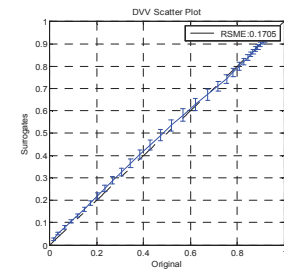
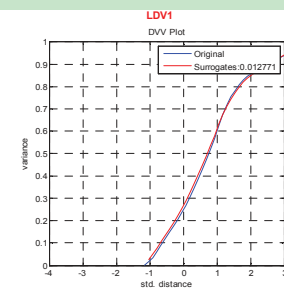
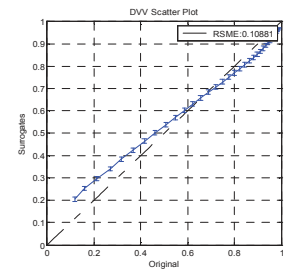
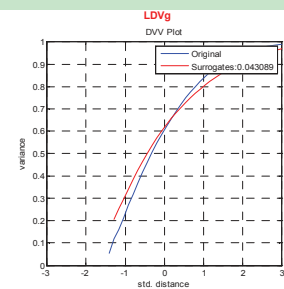
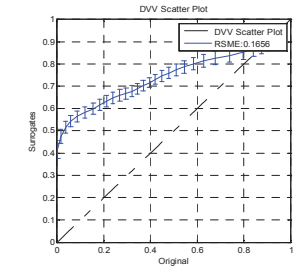
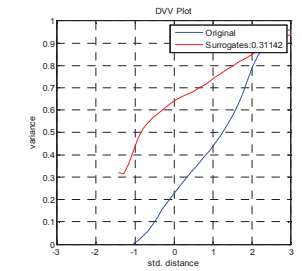
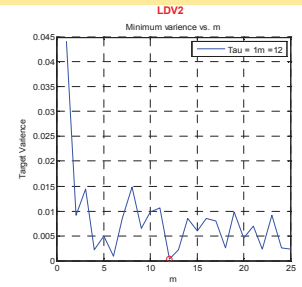
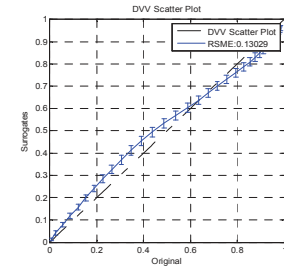
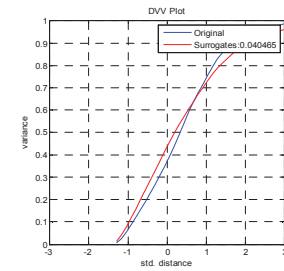
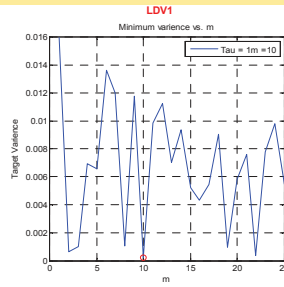
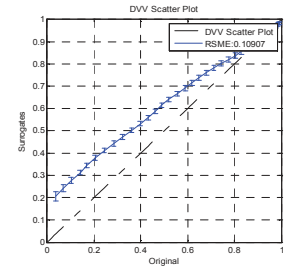
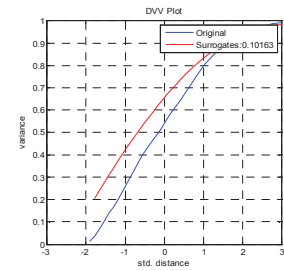
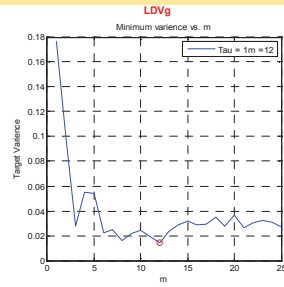
METHOD 3

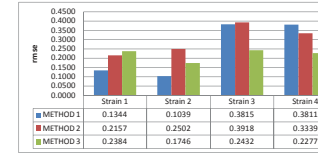
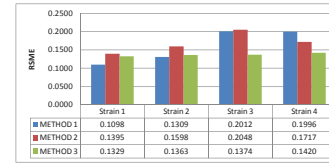
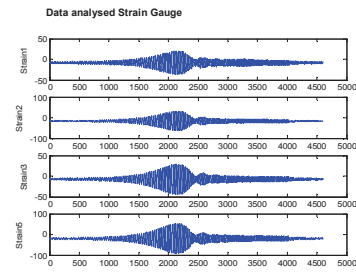
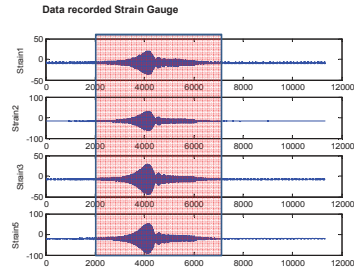




LDVg **LDV1** **LDV2**





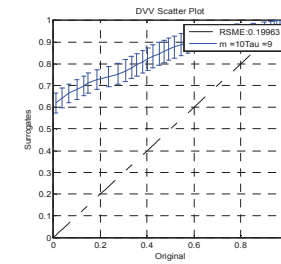
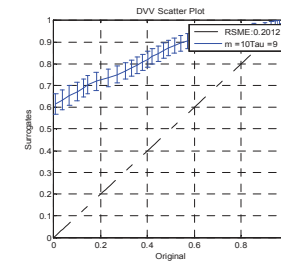
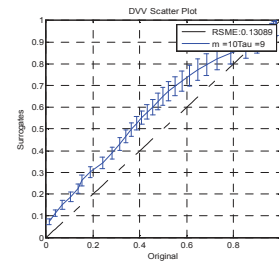
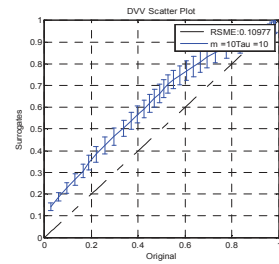
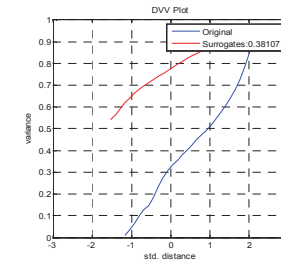
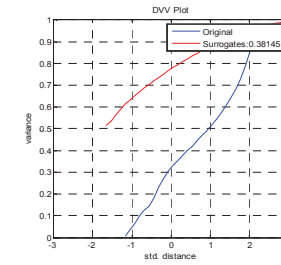
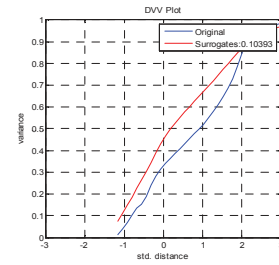
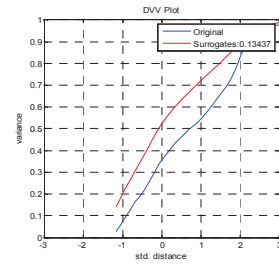
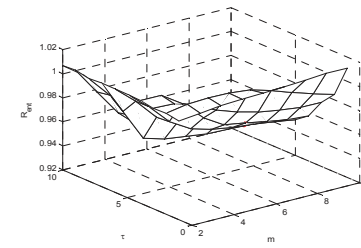
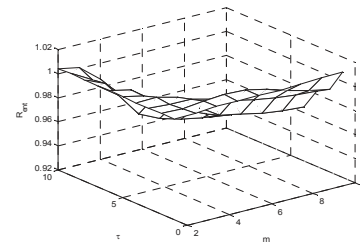
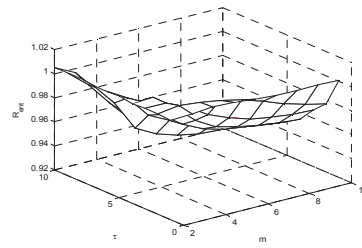
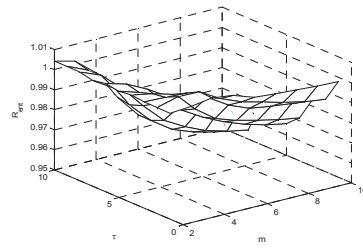


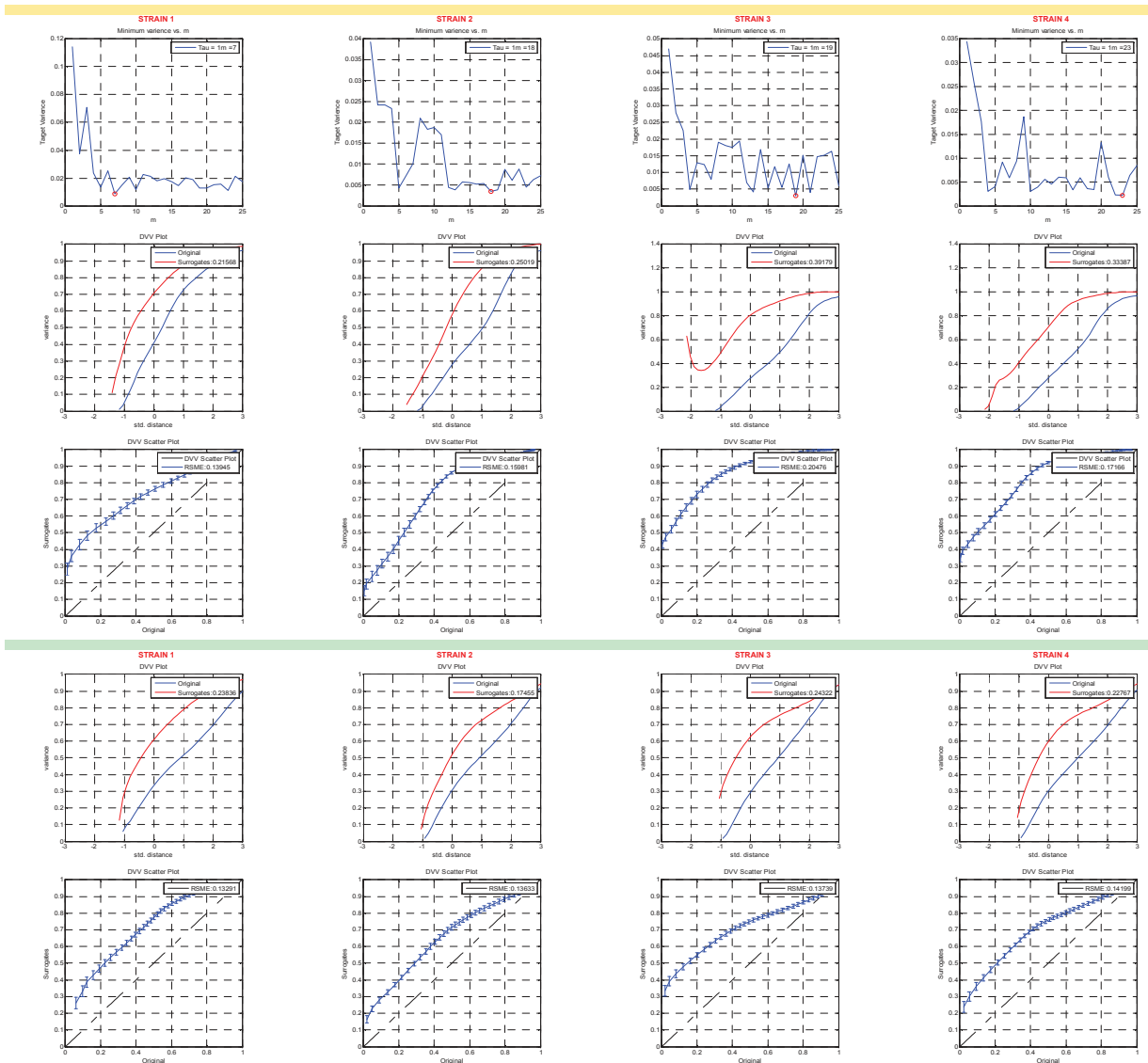
STRAIN 1

STRAIN 2

STRAIN 3

STRAIN 4



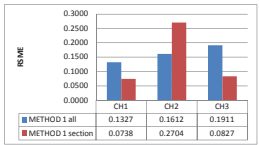
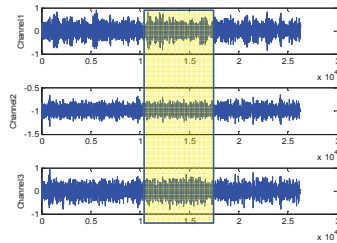
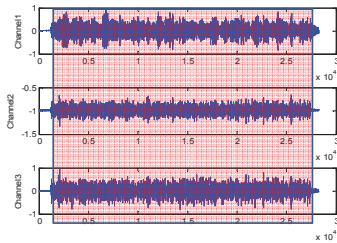


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME	
8	Loading White Noise Focus at accelerometer	CH1	4	1	0.0036	0.1327	10	1	0.0160	0.1327	3	1	0.0104	0.0686
		CH2	5	1	0.0435	0.1612	19	1	0.0804	0.1612	3	1	0.0347	0.1264
		CH3	3	1	0.0224	0.1911	16	1	0.0383	0.1911	3	1	0.0168	0.0917
		LDVg	4	1	0.2189	0.3882	19	1	0.0113	0.3882	3	1	0.0444	0.2542
		LDV1	6	10	0.1990	0.1337	12	1	0.0274	0.1337	3	1	0.0057	0.1268
		LDV2	9	10	0.2077	0.2399	14	1	0.3092	0.2399	3	1	0.2351	0.2062
		Strain 1	7	7	0.2163	0.3613	22	1	0.3935	0.3613	3	1	0.2497	0.3134
		Strain 2	7	7	0.1296	0.2427	24	1	0.2236	0.2427	3	1	0.0852	0.2064
		Strain 3	10	6	0.3315	0.1646	17	1	0.1921	0.1646	3	1	0.1455	0.1260
		Strain 4	10	10	0.3392	0.1124	16	1	0.0946	0.1124	3	1	0.0854	0.0854

METHOD 1 for data section			
best m	best τ	rsmc	RSME
4	1	0.0054	0.0738
5	1	0.2186	0.2704
3	1	0.0138	0.0827

Data recorded 3D Accelerometer

Data analysed 3D Accelerometer

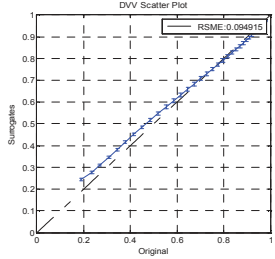
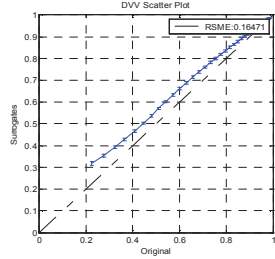
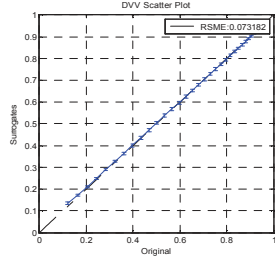
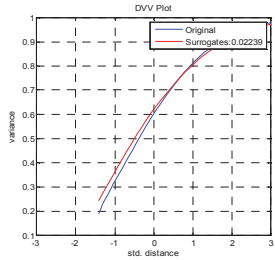
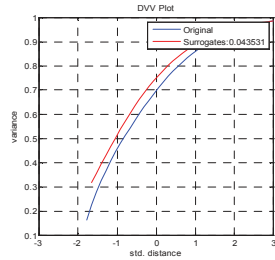
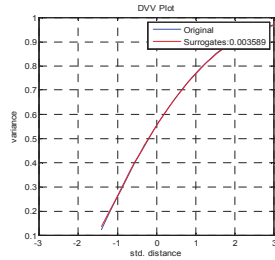
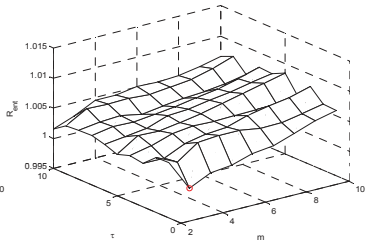
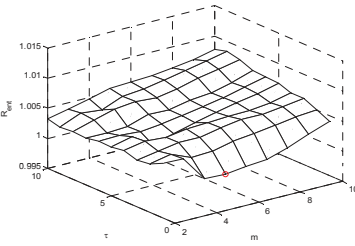
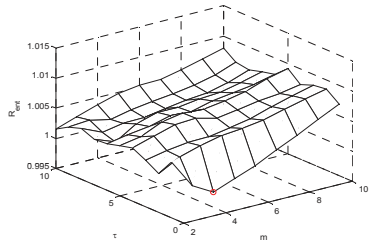


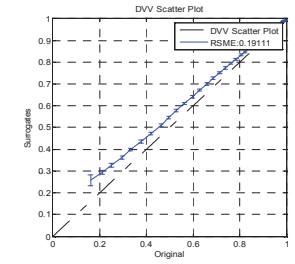
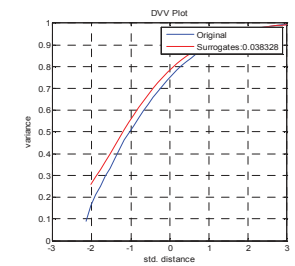
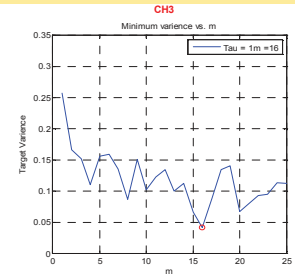
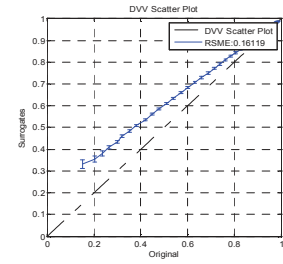
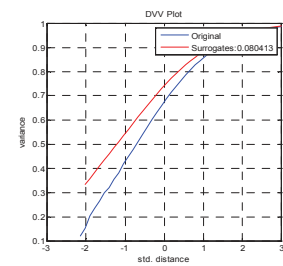
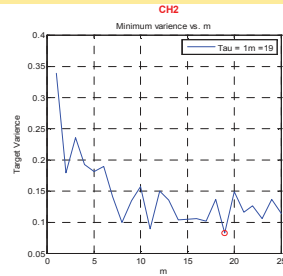
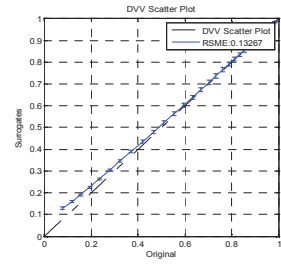
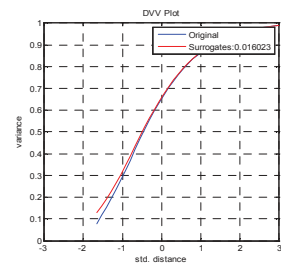
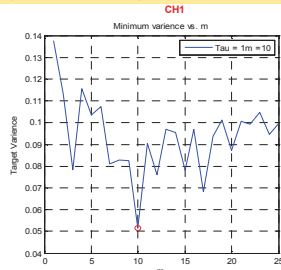
METHOD 1

CH1

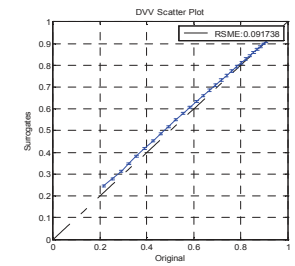
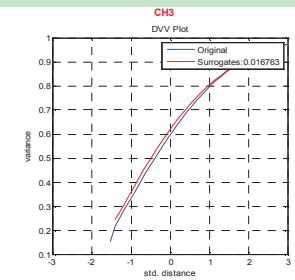
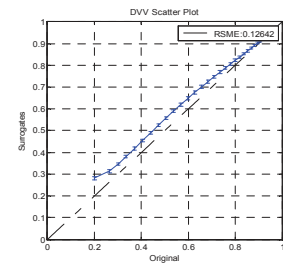
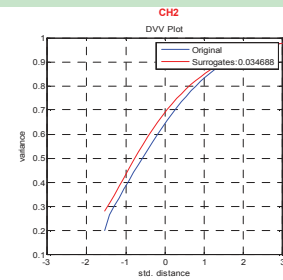
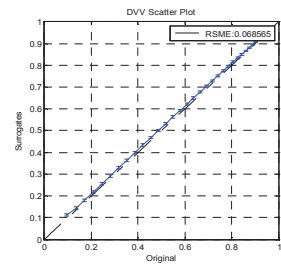
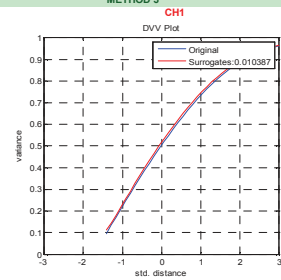
CH2

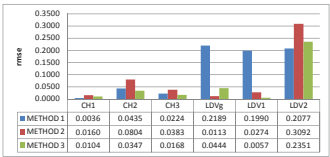
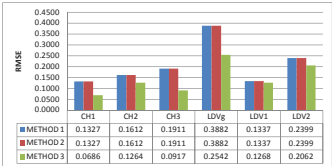
CH3



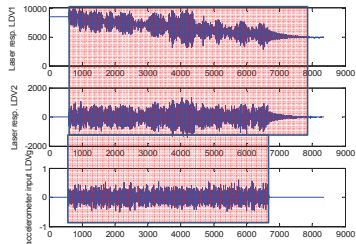


METHOD 3

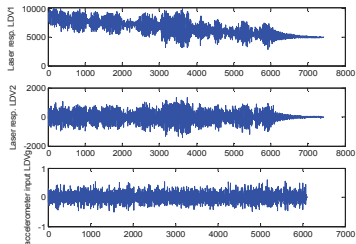




Data recorded LDV



Data analysed LDV



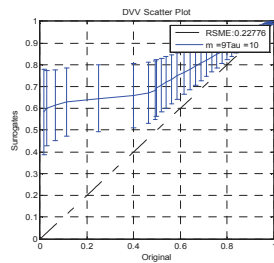
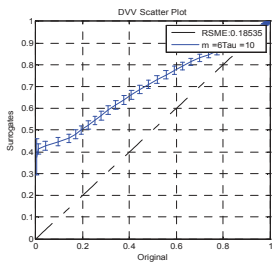
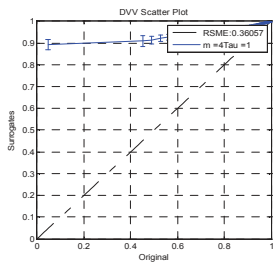
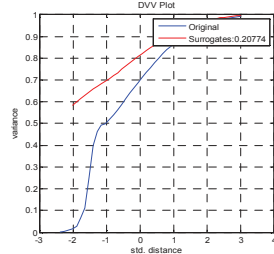
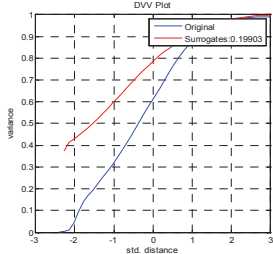
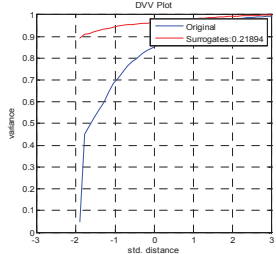
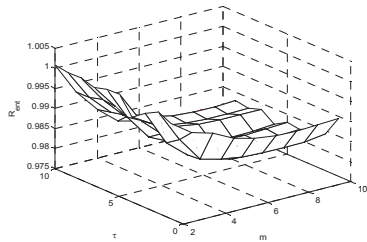
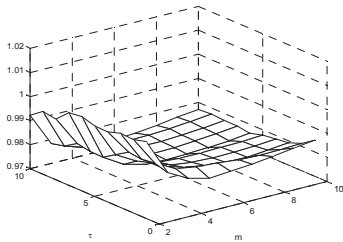
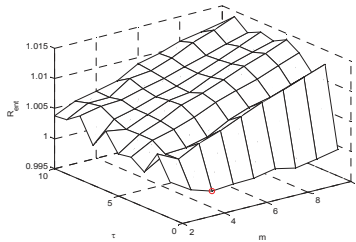
EXP

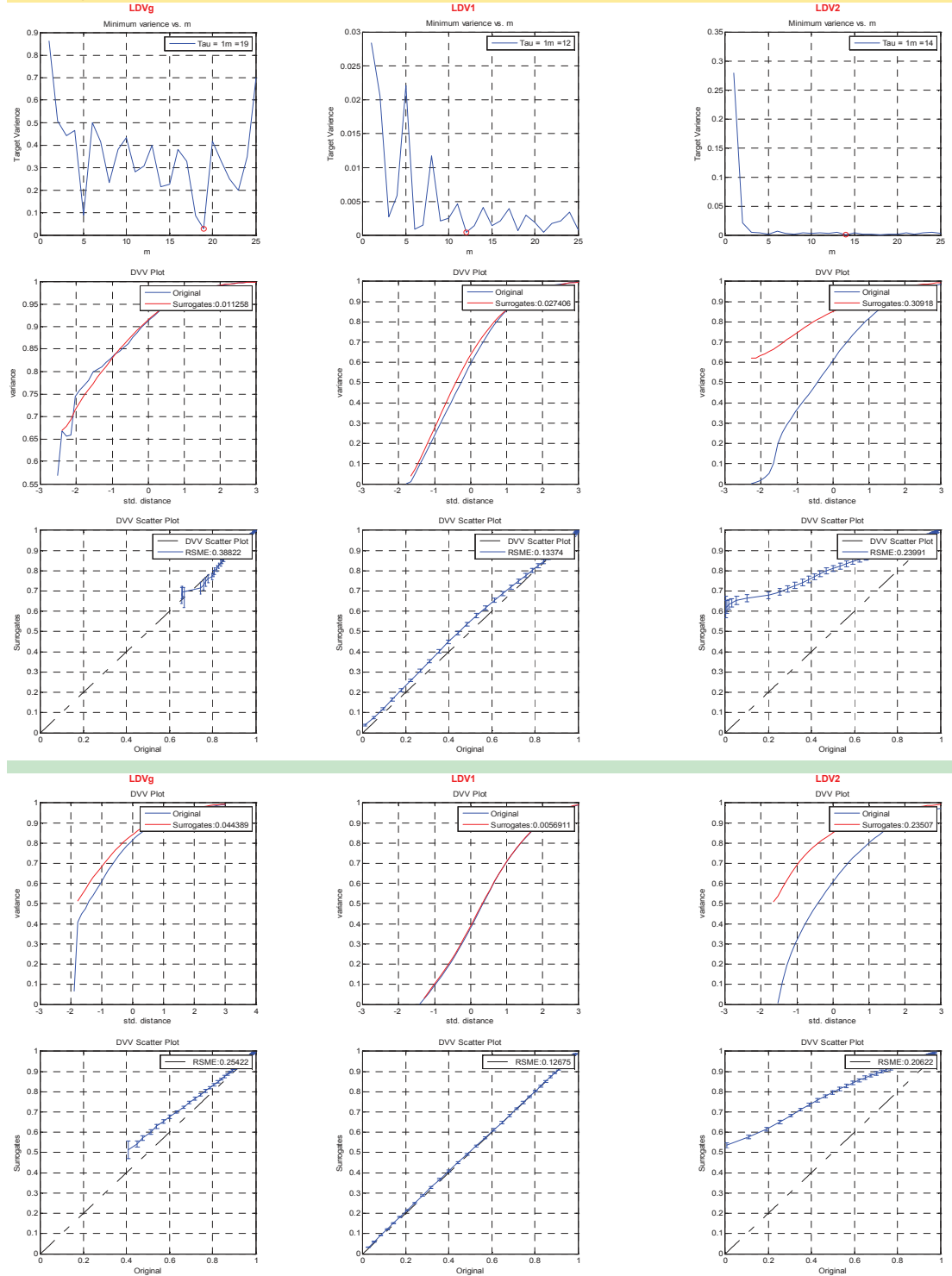
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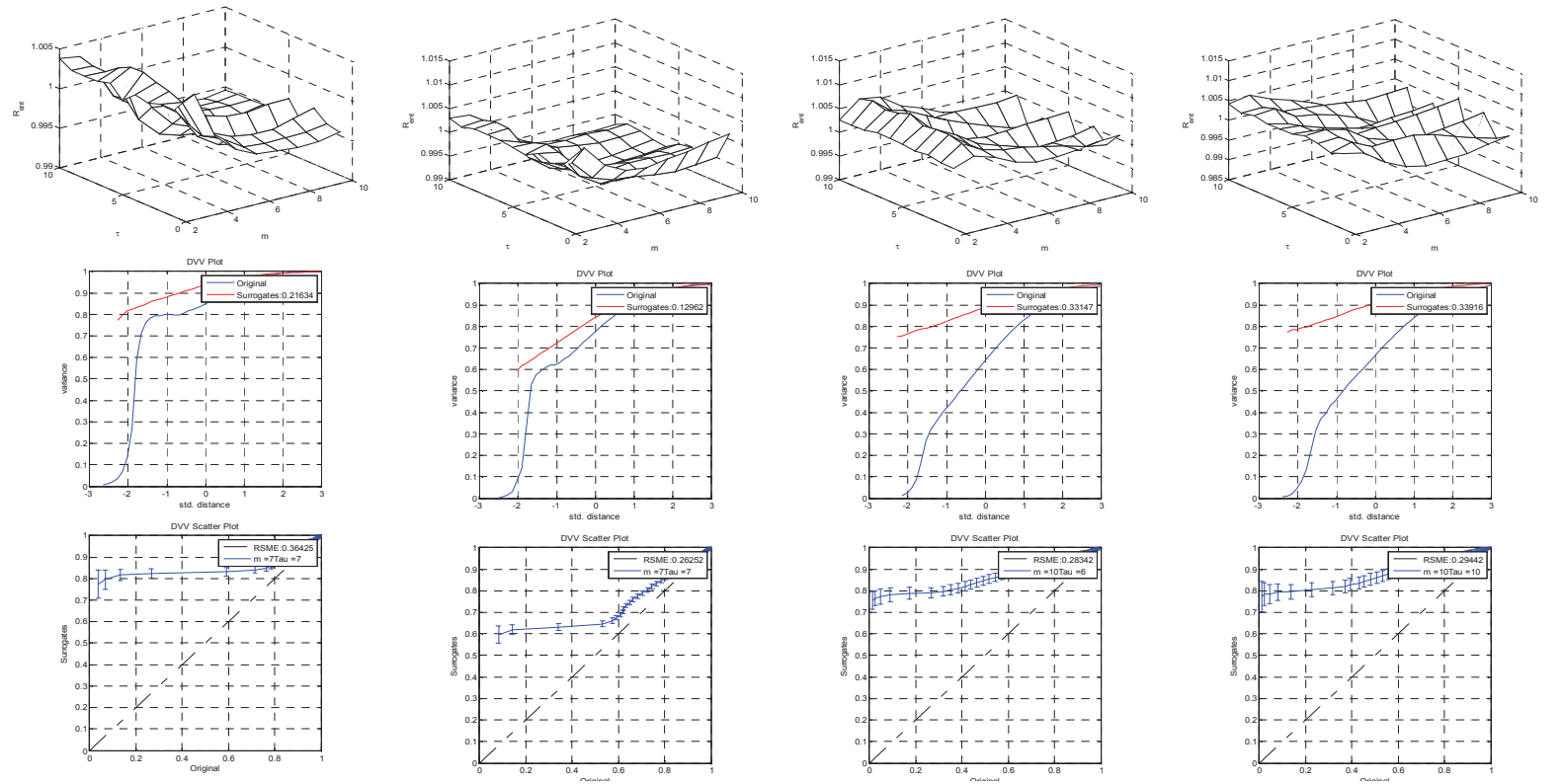
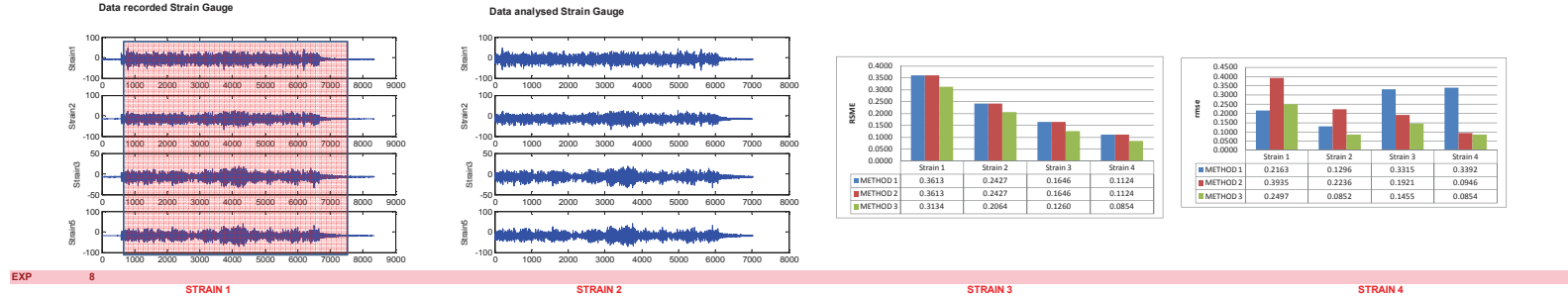
LDVg

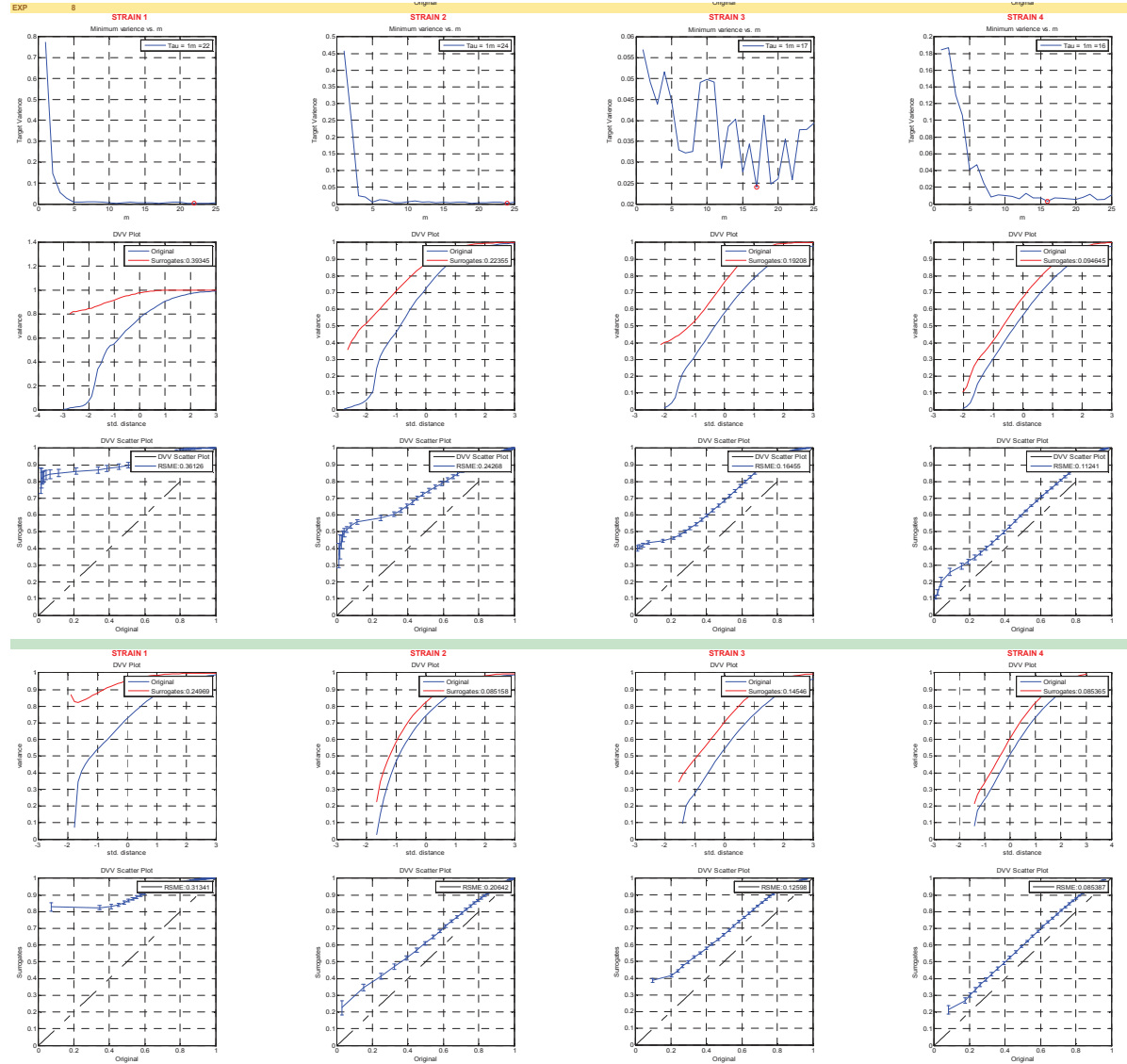
LDV1

LDV2





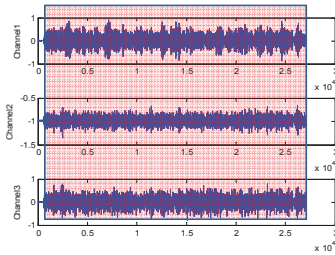




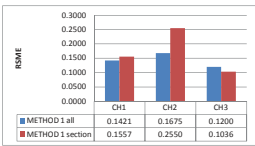
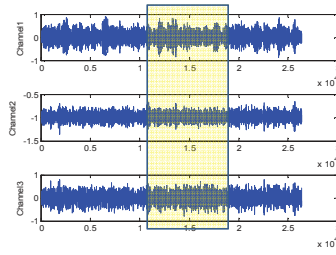
EXPERIMENT	VARIABLES		METHOD 1				METHOD 2				METHOD 3			
			best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME
9	Loading White noise 4.365Hz at the peak Focus at top strain gauge	CH1	2	7	0.0203	0.1421	7	1	0.0114	0.1050	3	1	0.0121	0.0704
		CH2	5	1	0.0394	0.1675	18	1	0.0761	0.1552	3	1	0.0297	0.1257
		CH3	5	1	0.0123	0.1200	25	1	0.0501	0.2024	3	1	0.0222	0.0947
		LDVg	5	1	0.2075	0.3547	15	1	0.0690	0.3539	3	1	0.0522	0.2421
		LDV1	3	9	0.0339	0.1178	15	1	0.0119	0.1097	3	1	0.0071	0.0961
		LDV2	2	1	0.0059	0.1578	17	1	0.2185	0.2670	3	1	0.1820	0.2898
		Strain 1	3	3	0.0082	0.3065	6	1	0.2182	0.3492	3	1	0.2197	0.3364
		Strain 2	2	9	0.0052	0.3211	7	1	0.0842	0.2754	3	1	0.0730	0.2318
		Strain 3	10	6	0.2223	0.2959	23	1	0.1423	0.1939	3	1	0.1275	0.1328
		Strain 4	10	10	0.0073	0.1965	7	1	0.0813	0.1675	3	1	0.0804	0.0913

METHOD 1 for data section				
best m	best τ	rsmc	RSME	
2	7	0.0090	0.1557	
5	1	0.2138	0.2550	
5	1	0.0167	0.1036	

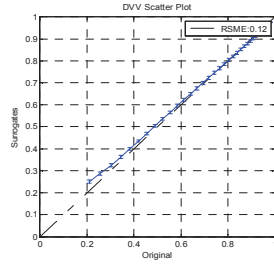
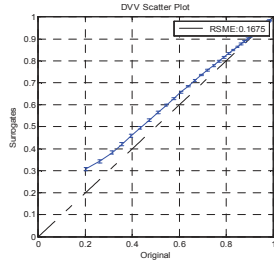
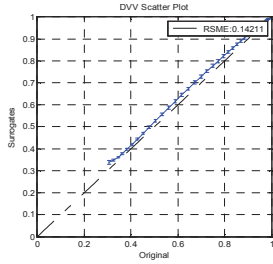
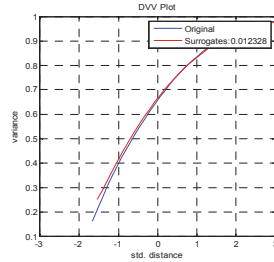
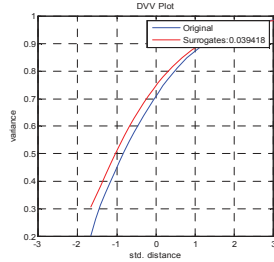
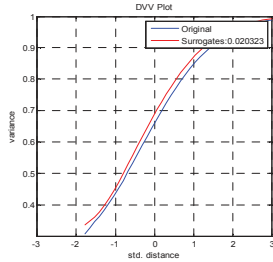
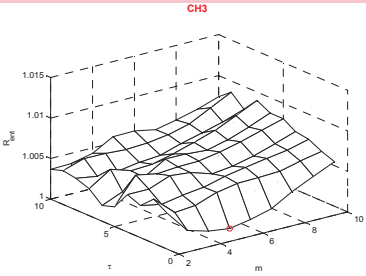
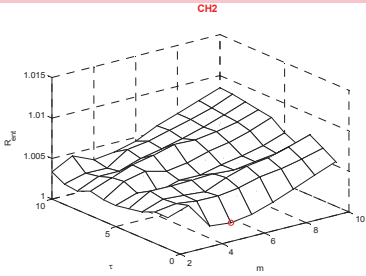
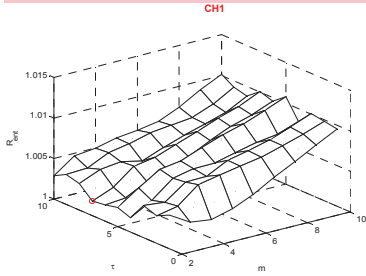
Data recorded 3D Accelerometer



Data analysed 3D Accelerometer

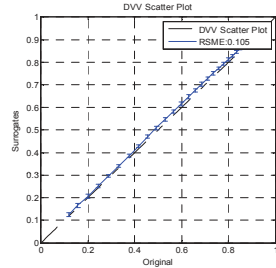
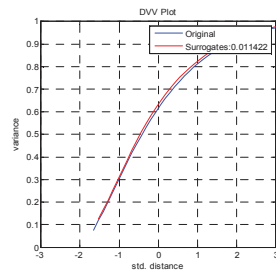
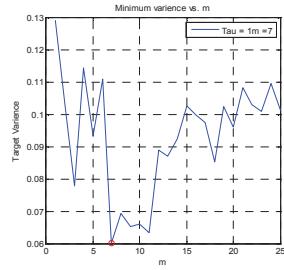


METHOD 1

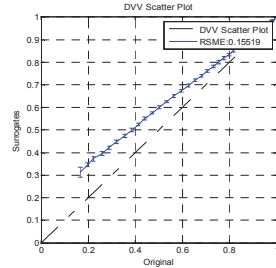
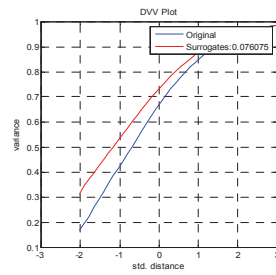
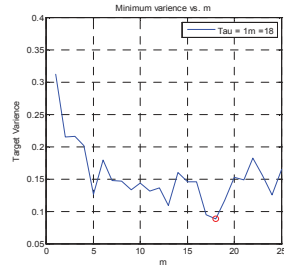


METHOD 2

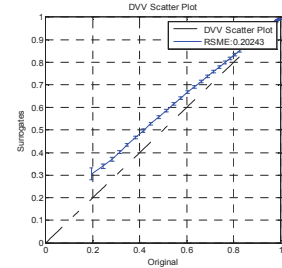
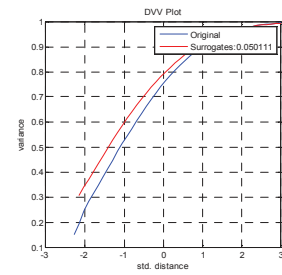
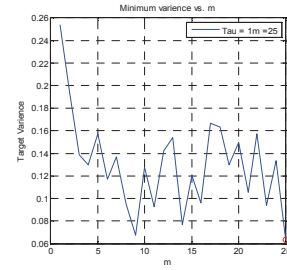
CH1



CH2

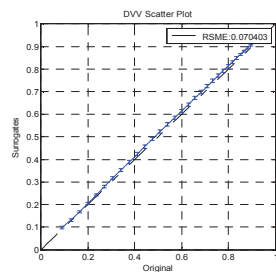
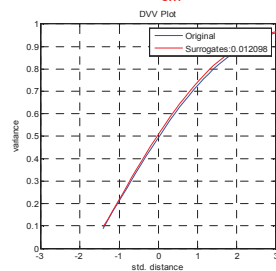


CH3

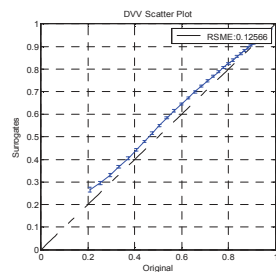
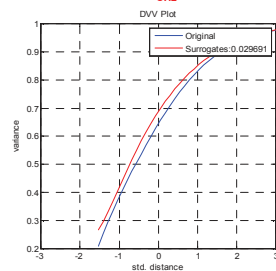


METHOD 3

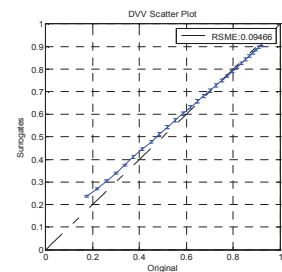
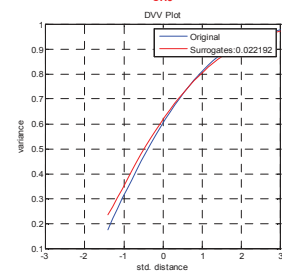
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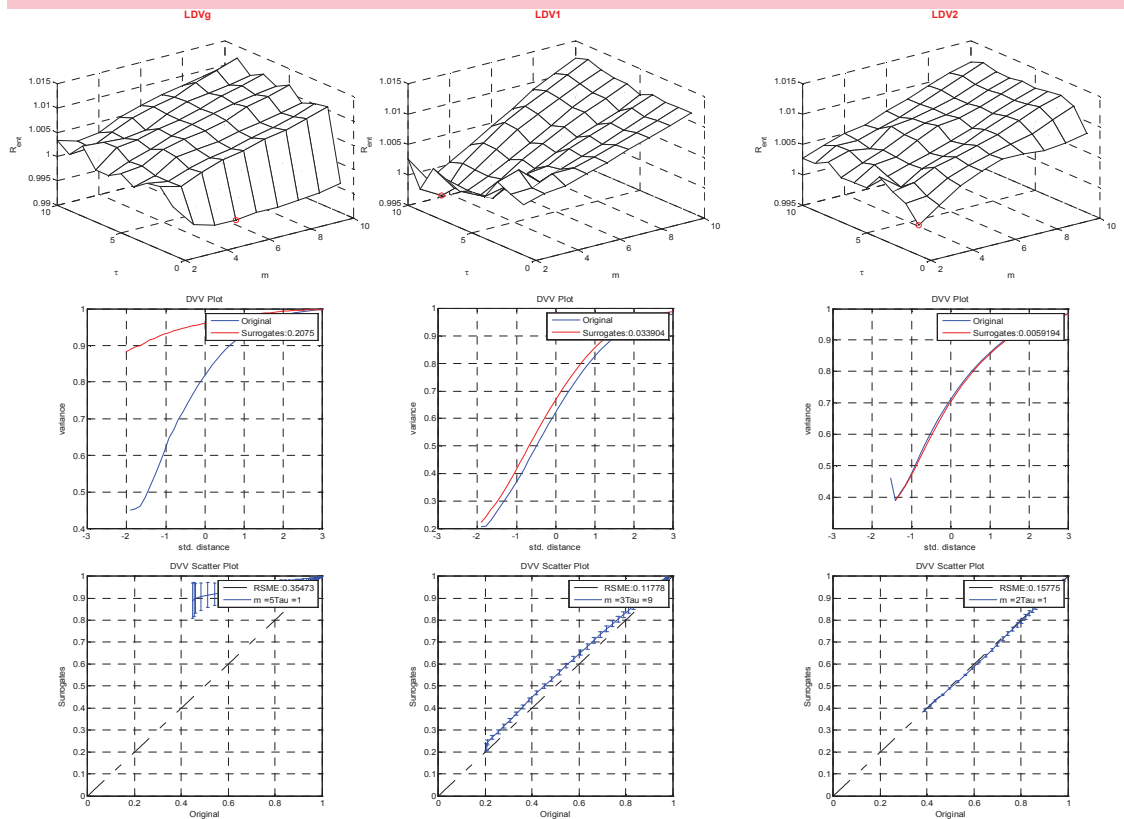
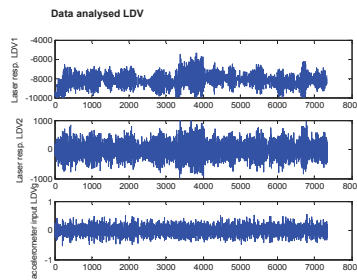
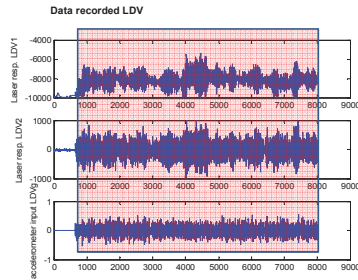
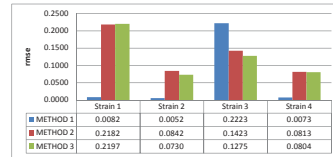
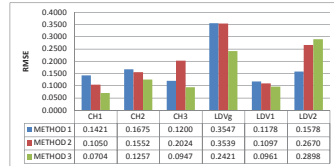


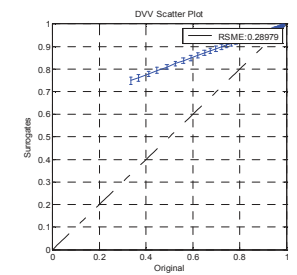
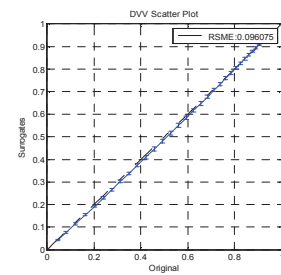
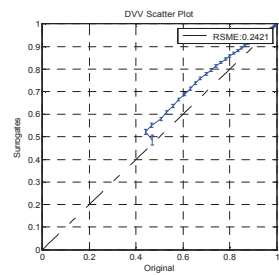
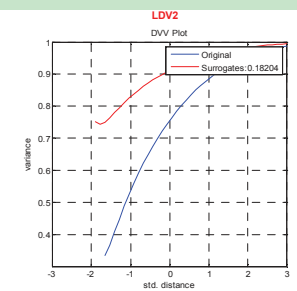
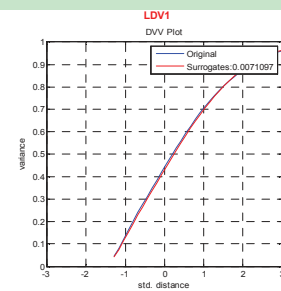
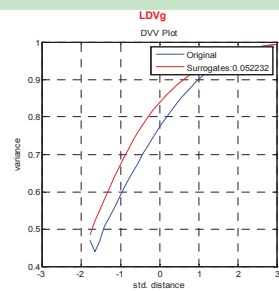
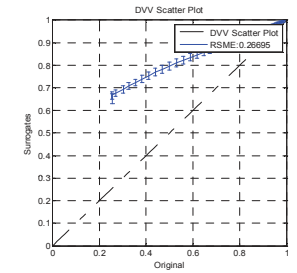
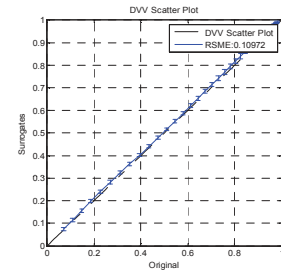
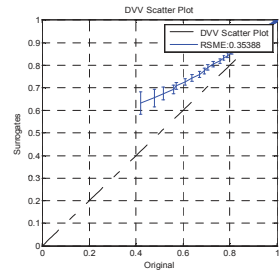
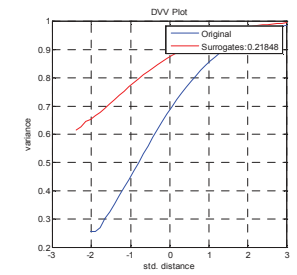
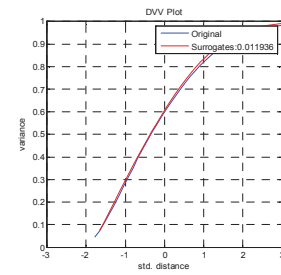
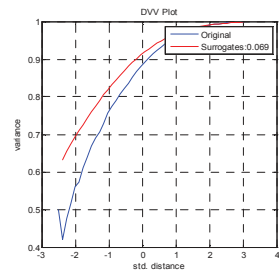
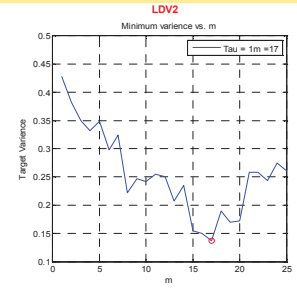
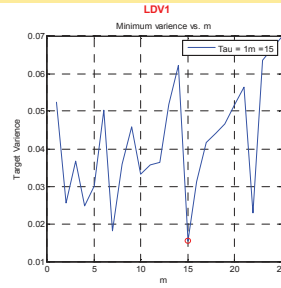
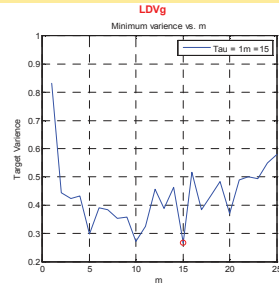
CH2

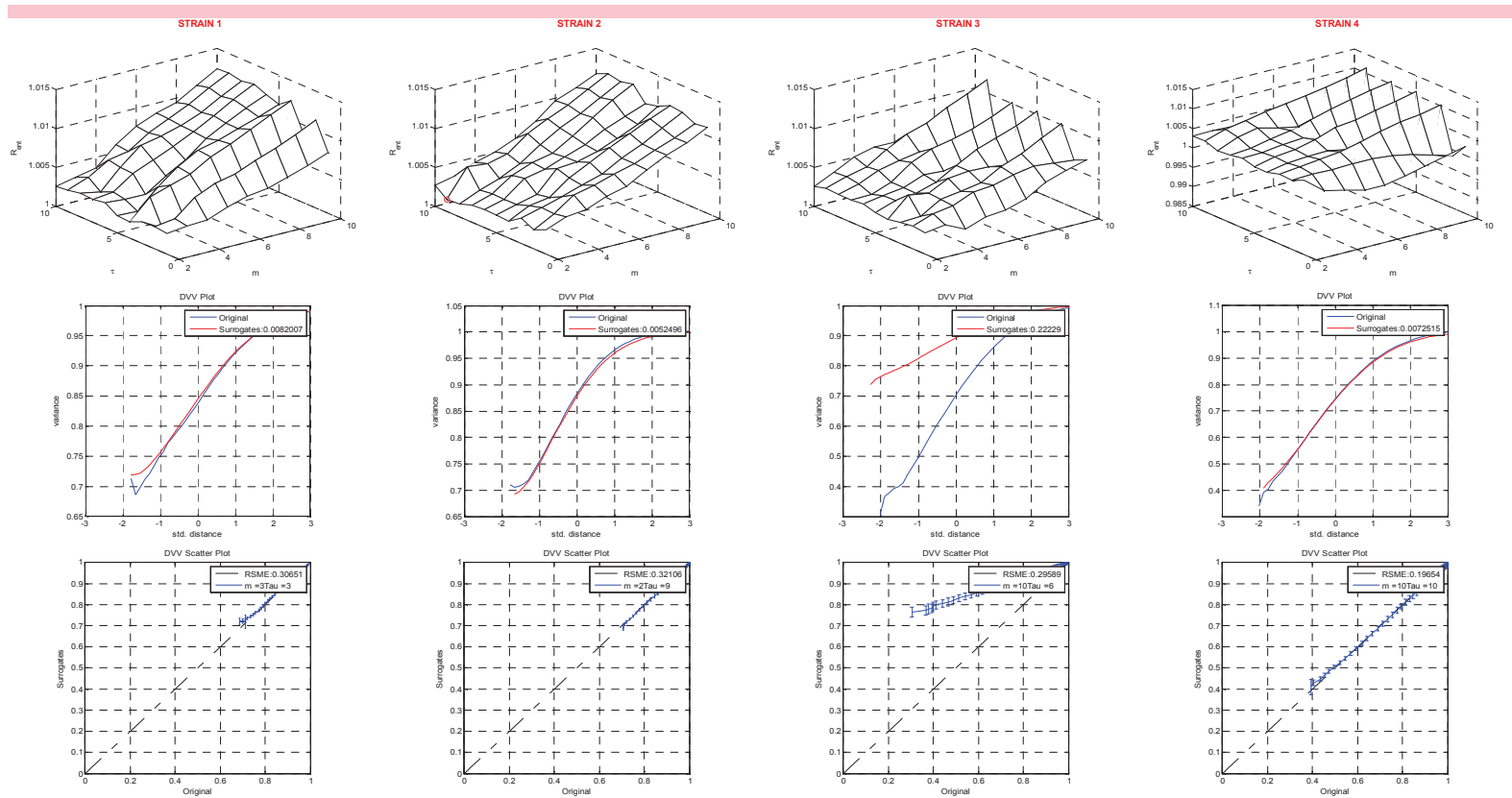
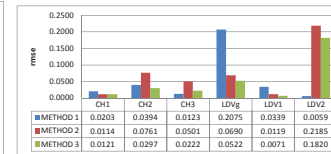
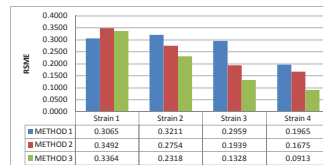
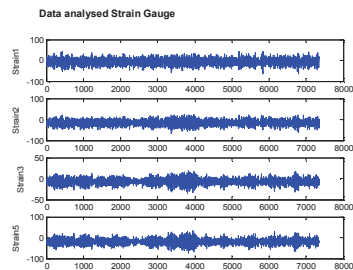
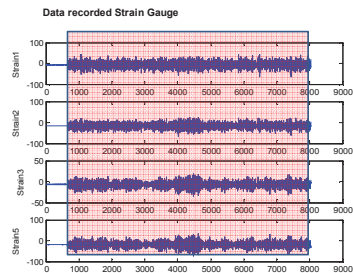


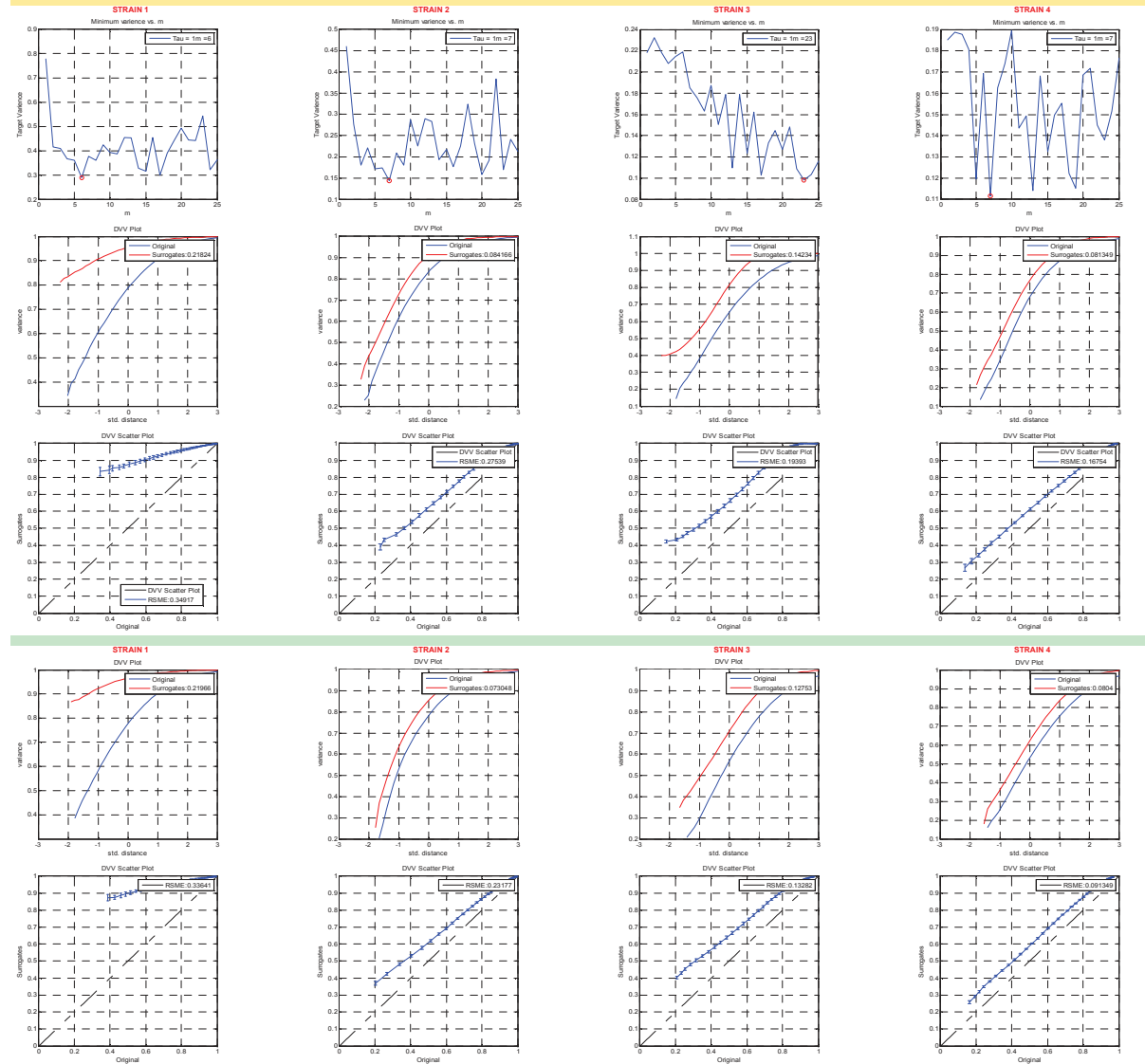
CH3









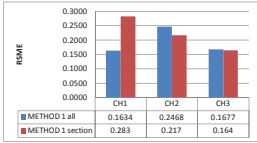
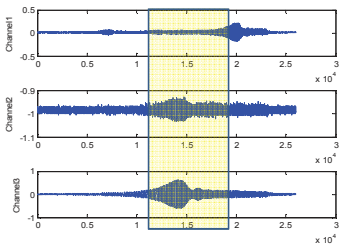
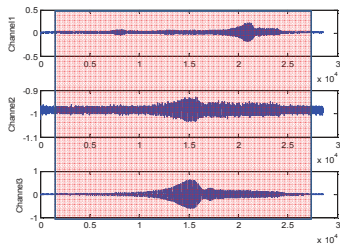


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsme	RSME	calc m	τ	rsme	RSME	set m	set τ	rsme	RSME	
10	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at top strain gauge	CH1	7	10	0.0696	0.1634	19	1	0.0964	0.2472	3	1	0.0406	0.2608
		CH2	2	8	0.0451	0.2468	20	1	0.0536	0.1117	3	1	0.0443	0.0576
		CH3	5	10	0.0142	0.1677	3	1	0.0102	0.2814	3	1	0.0688	0.3002
		LDVg	10	2	0.3382	0.2526	4	1	0.0559	0.1080	3	1	0.0501	0.0948
		LDV1	6	9	0.3271	0.1985	22	1	0.0585	0.1792	3	1	0.0137	0.1854
		LDV2	8	10	0.1156	0.1703	15	1	0.3039	0.1775	3	1	0.2673	0.1696
		Strain 1	10	10	0.1380	0.1337	14	1	0.4121	0.2053	3	1	0.2496	0.1449
		Strain 2	10	9	0.3985	0.2059	10	1	0.2505	0.1497	3	1	0.2046	0.1533
		Strain 3	10	9	0.4153	0.2148	11	1	0.3410	0.1694	3	1	0.3243	0.1976
		Strain 4	10	9	0.3978	0.2049	12	1	0.3542	0.1764	3	1	0.2607	0.1687

Data recorded 3D Accelerometer

Data analysed 3D Accelerometer

METHOD 1 for data section			
best m	best τ	rsme	RSME
7	10	0.072	0.283
2	8	0.151	0.217
5	10	0.210	0.164

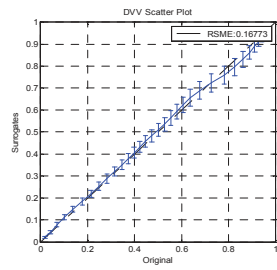
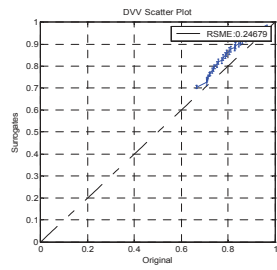
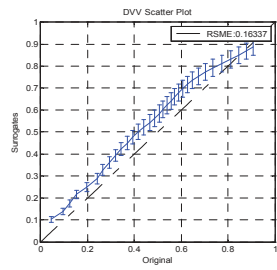
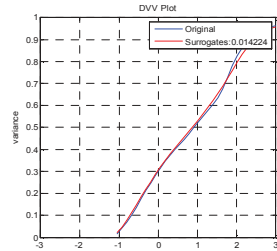
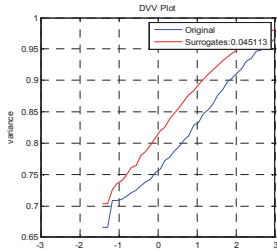
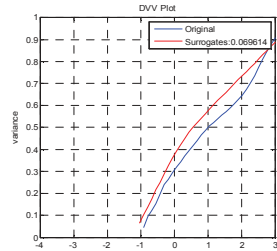
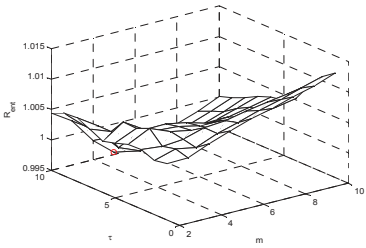
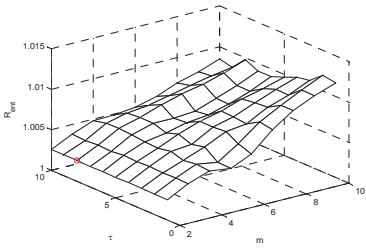
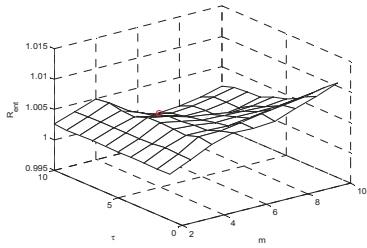


METHOD 1

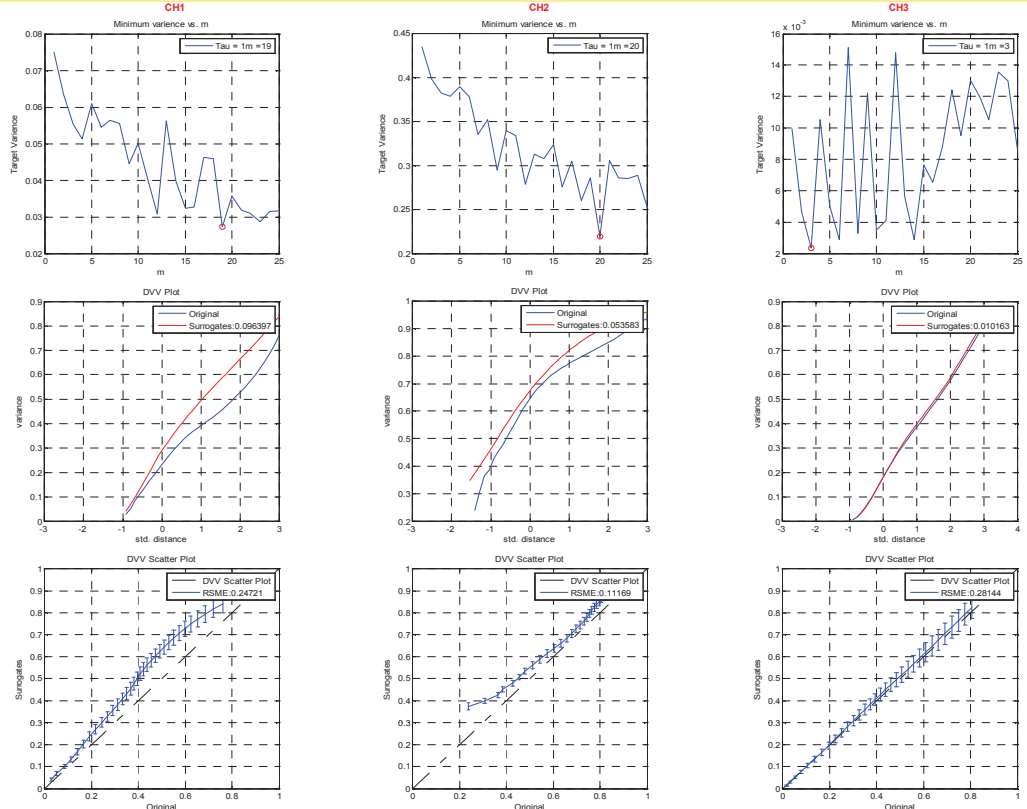
CH1

CH2

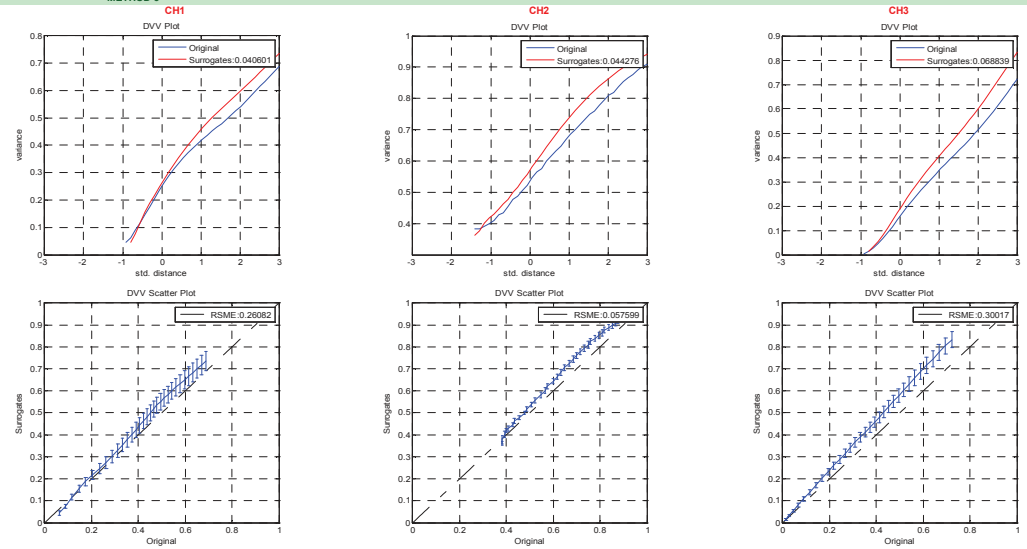
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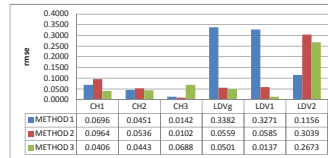
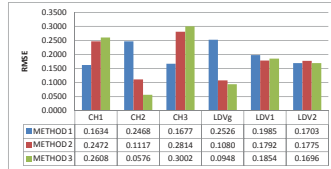


METHOD 2

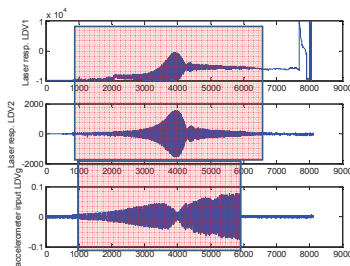


METHOD 3

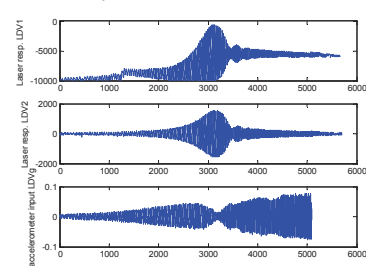




Data recorded LDV



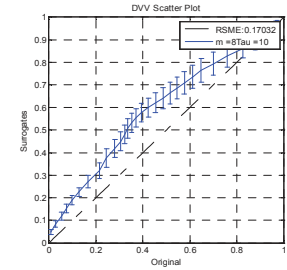
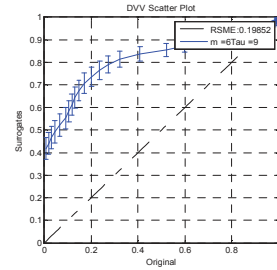
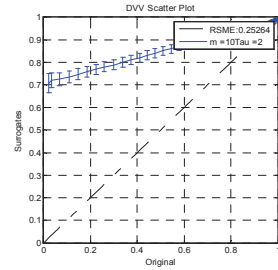
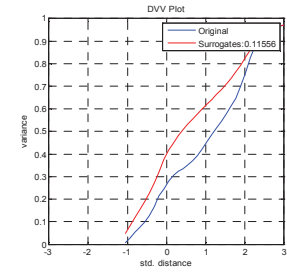
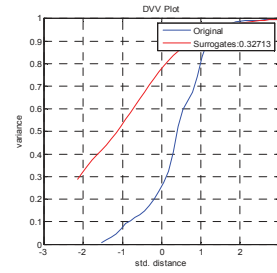
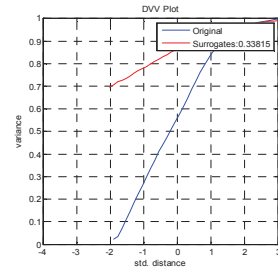
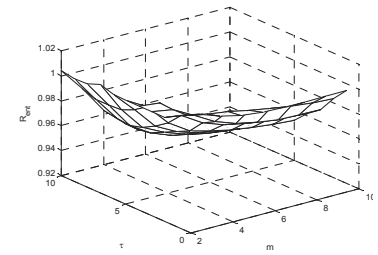
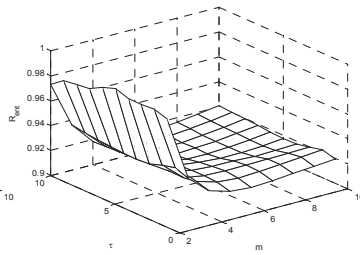
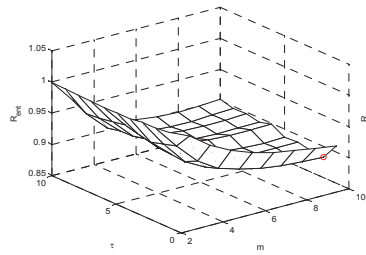
Data analysed LDV

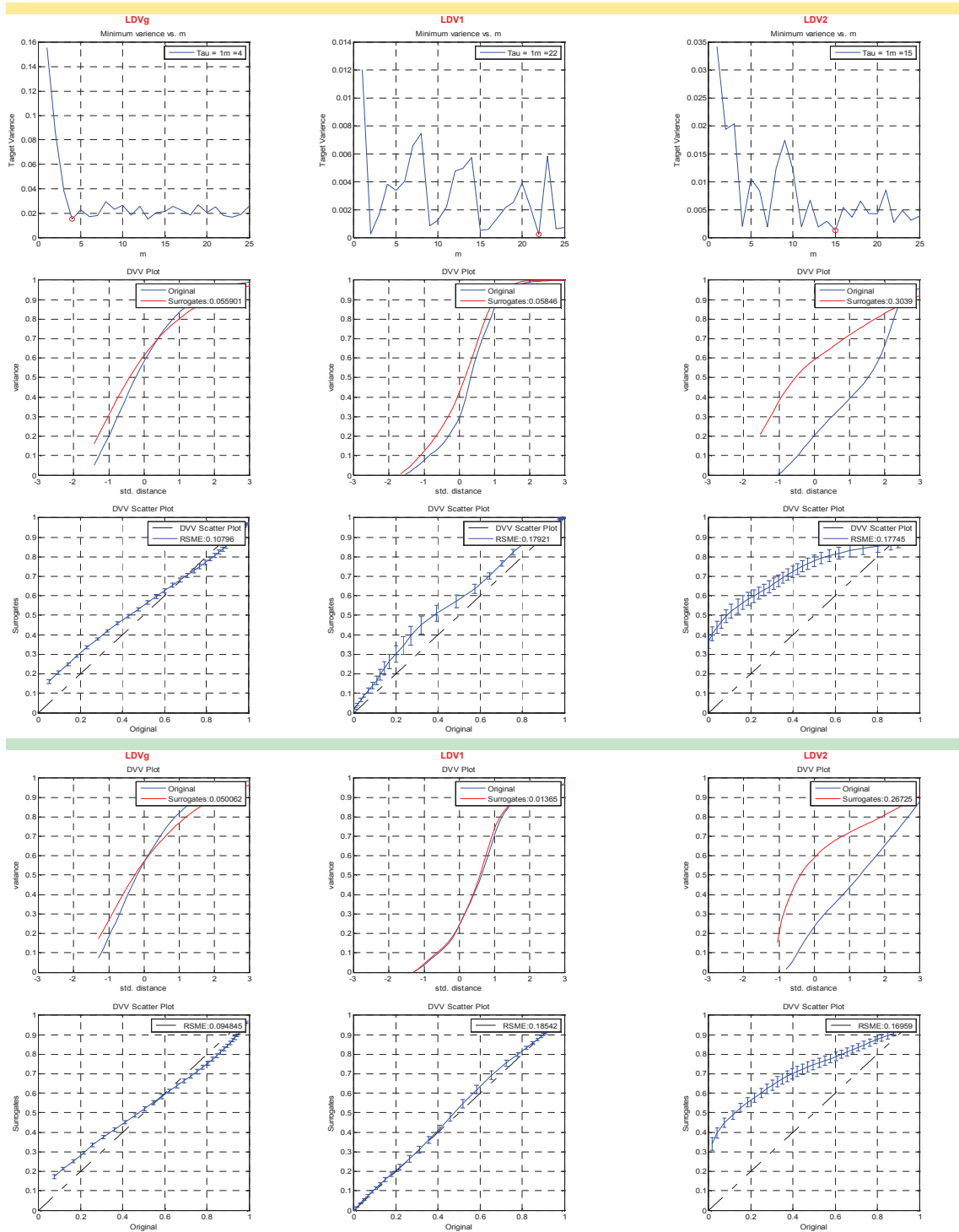


LDVg

LDV1

LDV2





LDVg

DVV Plot

Original
Surrogates: 0.050062

DVV Scatter Plot

RSME: 0.094845

LDV1

DVV Plot

Original
Surrogates: 0.01365

DVV Scatter Plot

RSME: 0.18542

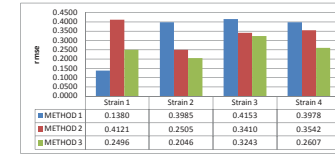
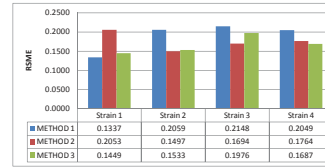
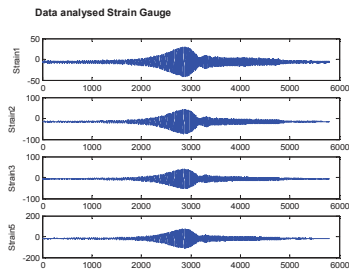
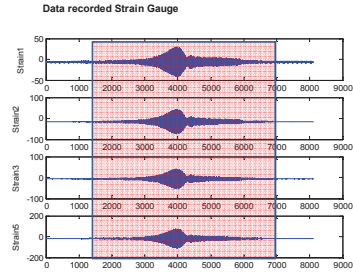
LDV2

DVV Plot

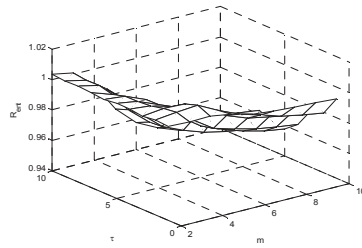
Original
Surrogates: 0.26725

DVV Scatter Plot

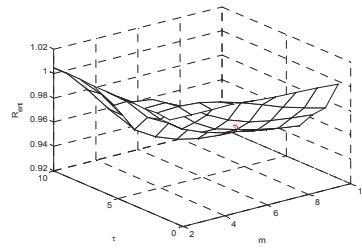
RSME: 0.16959



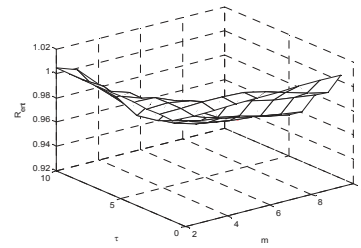
STRAIN 1



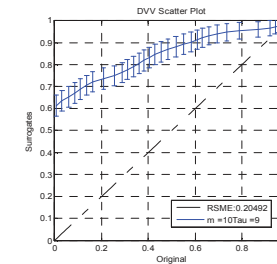
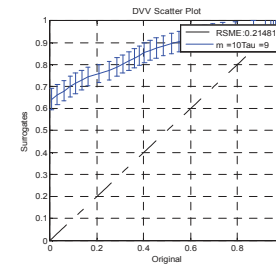
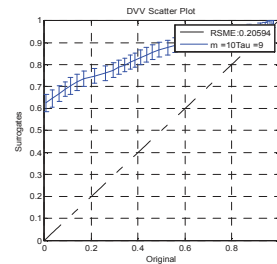
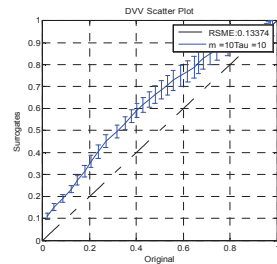
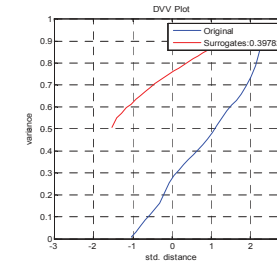
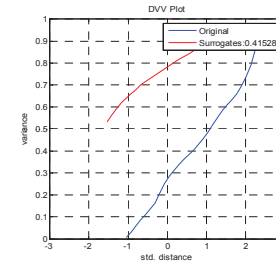
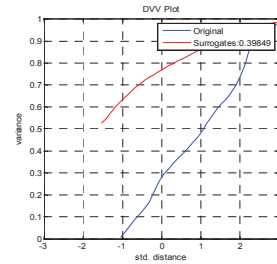
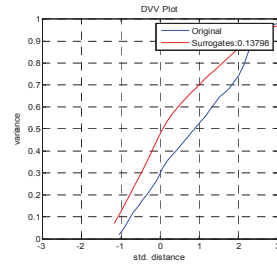
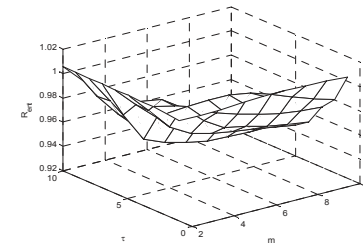
STRAIN 2

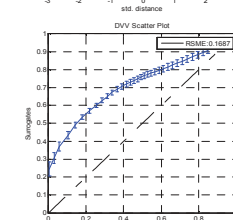
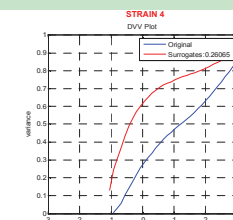
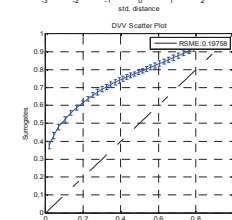
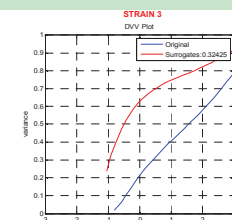
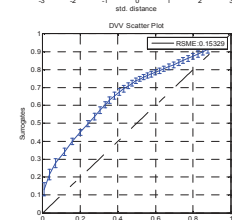
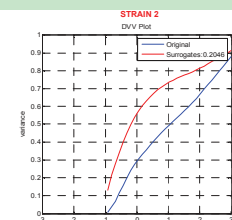
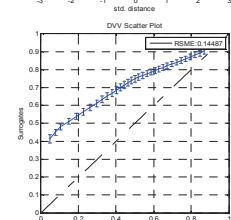
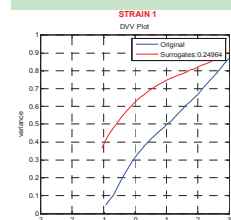
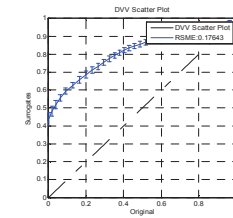
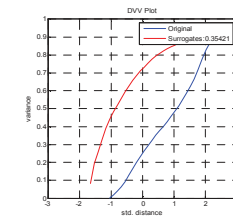
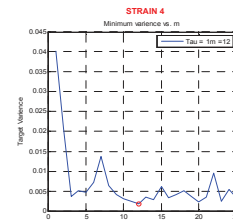
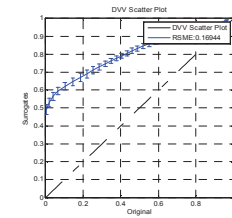
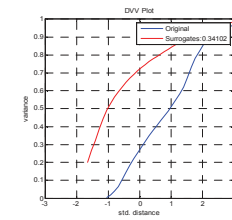
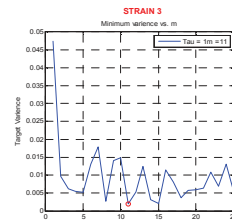
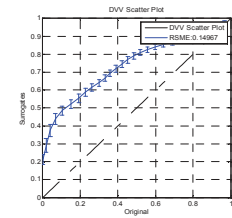
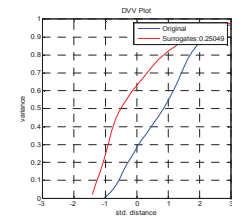
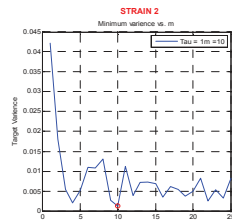
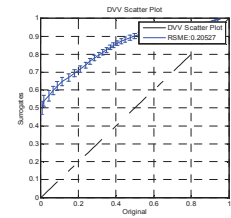
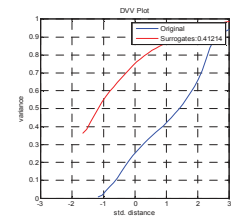
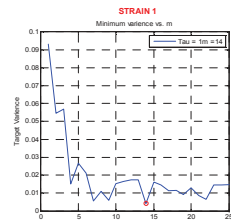


STRAIN 3



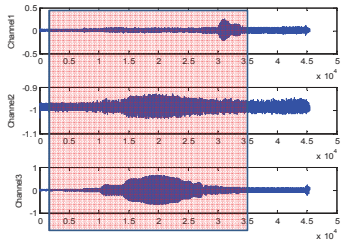
STRAIN 4



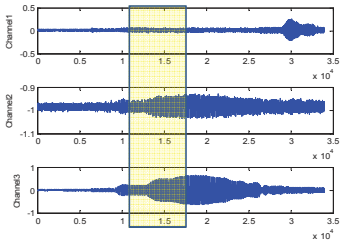


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME	
11	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0 Hz 5.5 Hz 6.0 Hz 6.5 Hz 7.0 Hz Focus at top strain gauge	CH1	7	10	0.0832	0.1831	19	1	0.0857	0.2276	3	1	0.0090	0.2512
		CH2	6	10	0.0562	0.1197	22	1	0.0283	0.0817	3	1	0.0116	0.0566
		CH3	4	9	0.0117	0.1400	22	1	0.0071	0.1270	3	1	0.0033	0.1931
		LDVg	10	3	0.1712	0.1685	25	1	0.1249	0.1246	3	1	0.0476	0.1111
		LDV1	8	10	0.1882	0.1488	22	1	0.1733	0.1619	3	1	0.0513	0.1534
		LDV2	10	10	0.3138	0.1713	23	1	0.2482	0.1402	3	1	0.2315	0.1334
		Strain 1	10	10	0.2620	0.1491	17	1	0.4013	0.2202	3	1	0.2123	0.1152
		Strain 2	10	9	0.3953	0.2354	21	1	0.3584	0.1932	3	1	0.2224	0.1279
		Strain 3	10	9	0.3963	0.2366	5	1	0.2270	0.1398	3	1	0.2484	0.1399
		Strain 4	10	9	0.3737	0.2128	19	1	0.4437	0.2166	3	1	0.2365	0.1354

Data recorded 3D Accelerometer

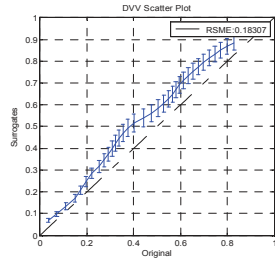
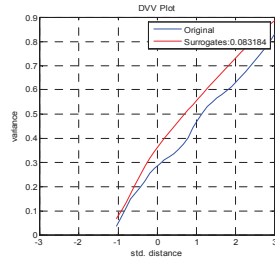
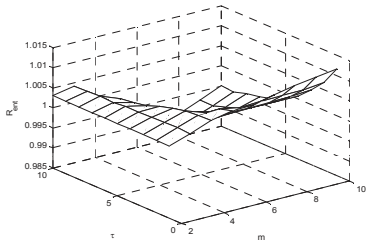


Data analysed 3D Accelerometer

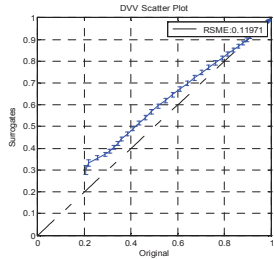
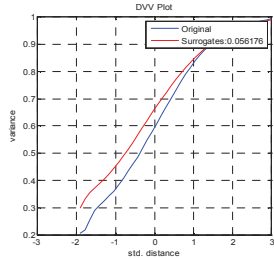
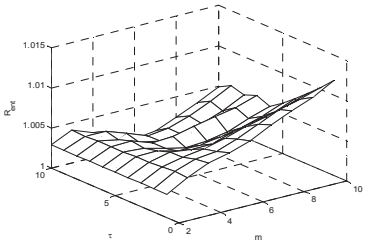


METHOD 1

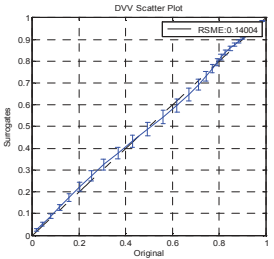
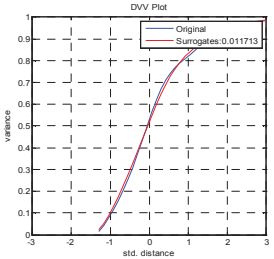
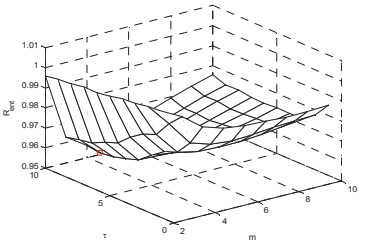
CH1



CH2

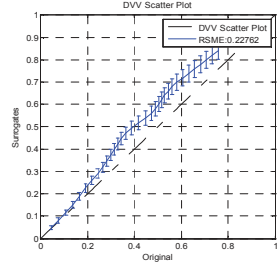
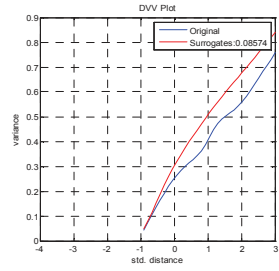
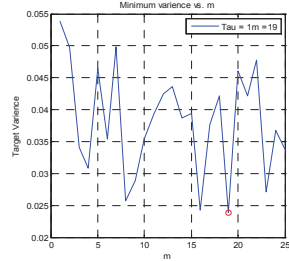


CH3

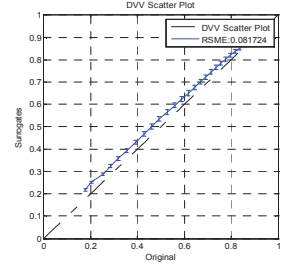
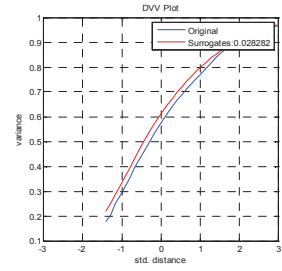
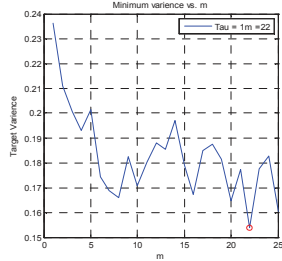


METHOD 2

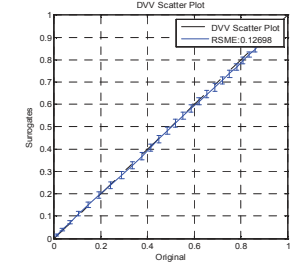
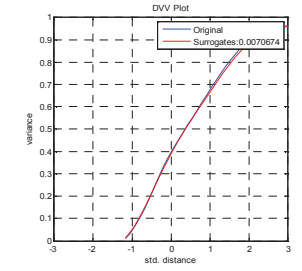
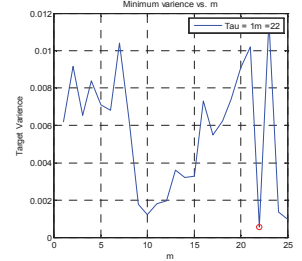
CH1



CH2

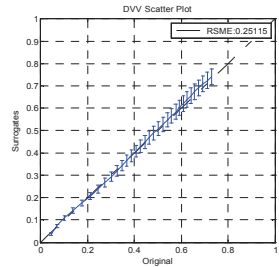
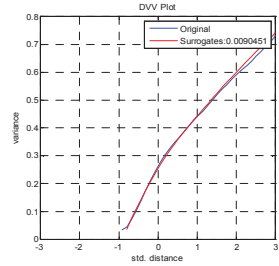


CH3

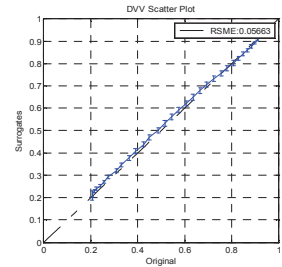
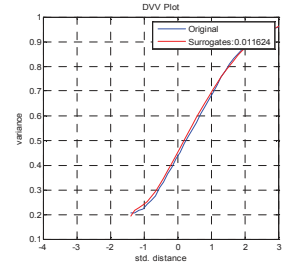


METHOD 3

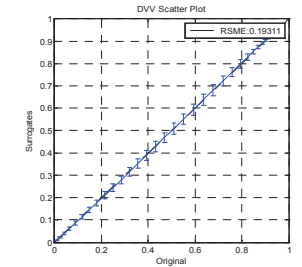
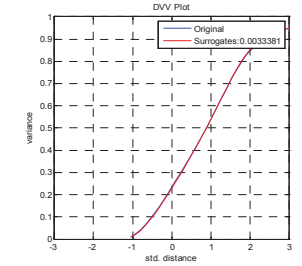
CH1

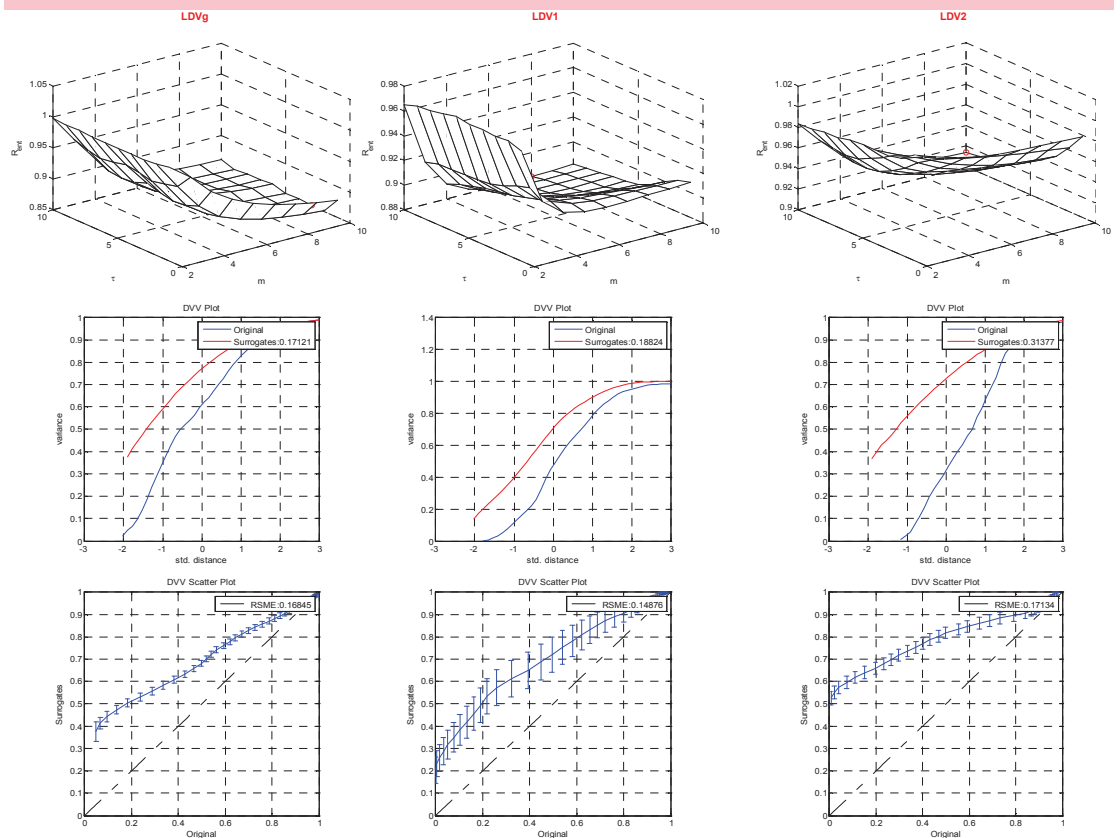
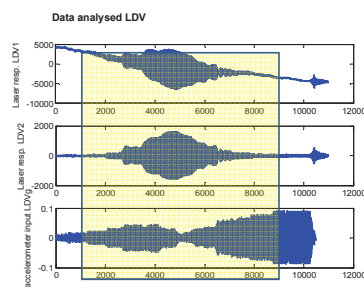
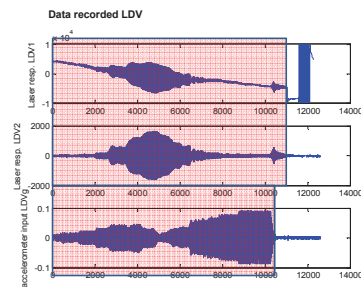
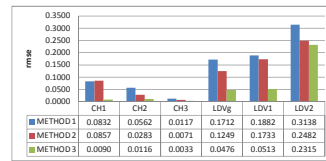
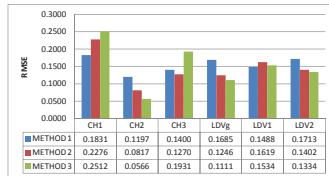


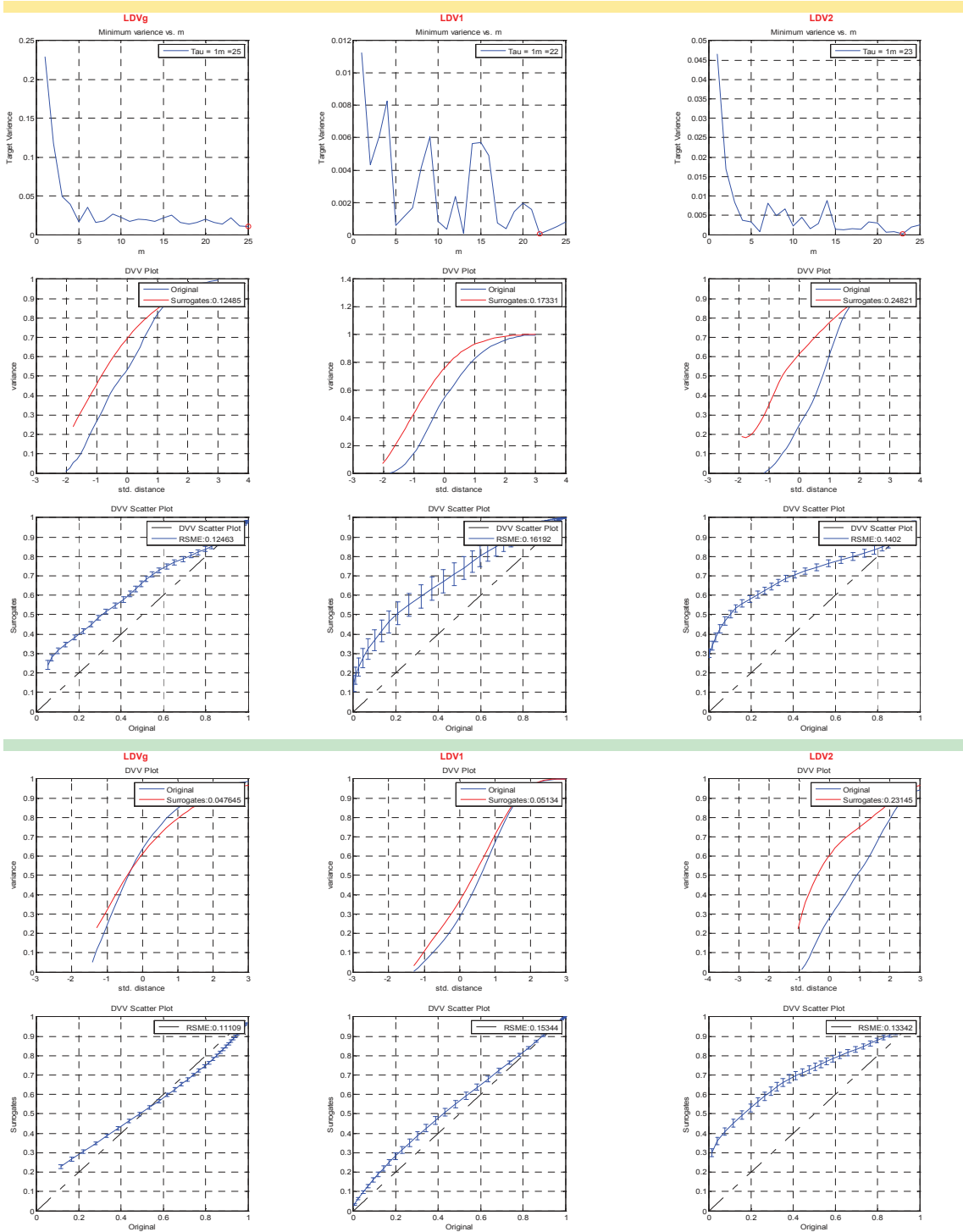
CH2

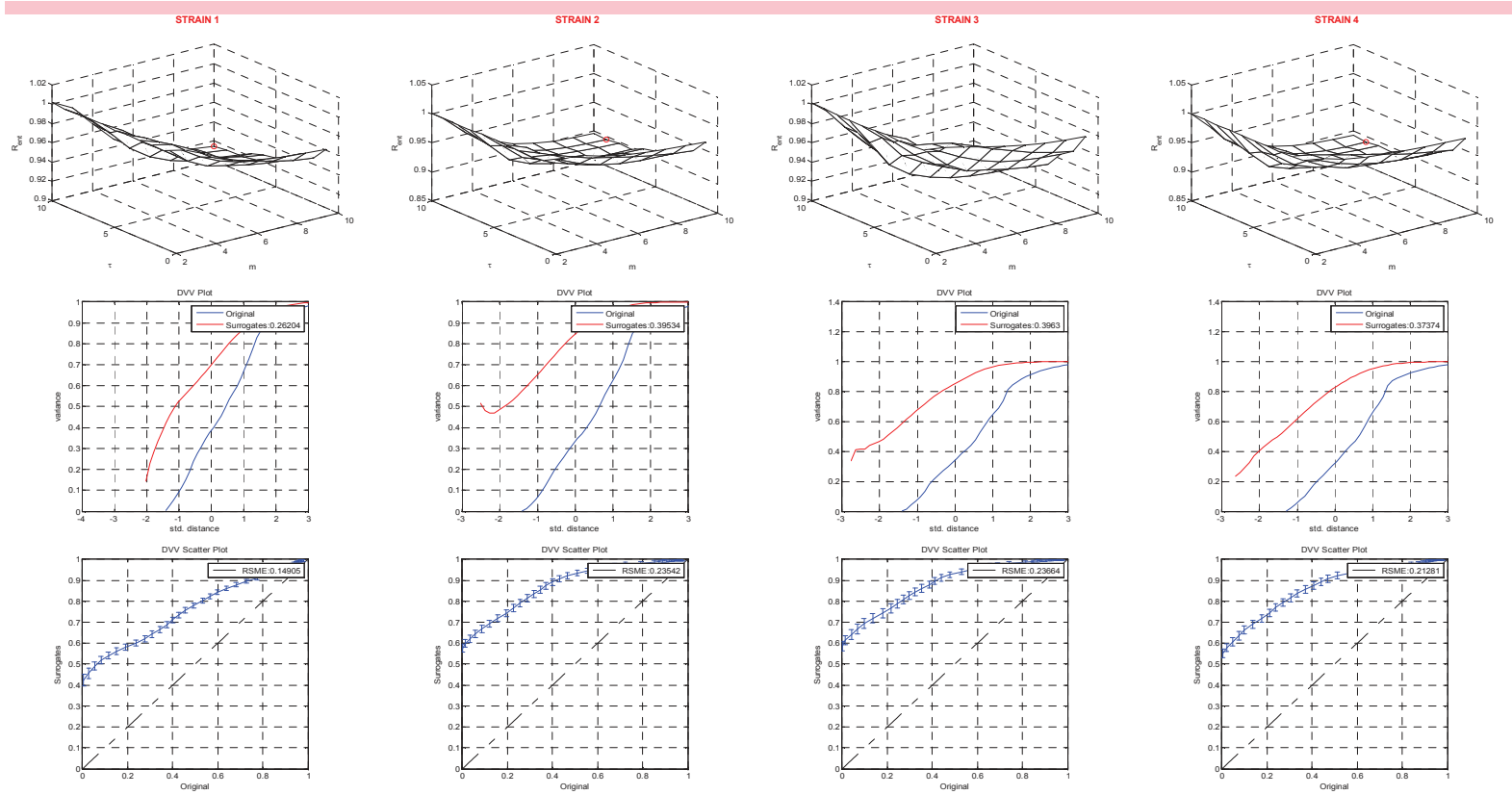
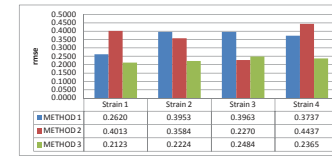
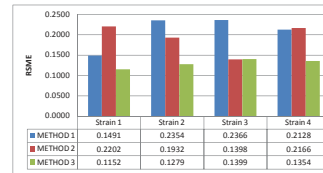
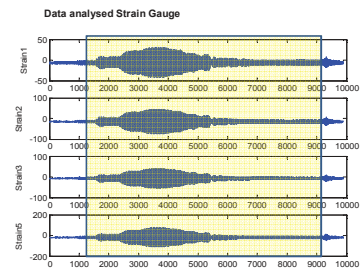
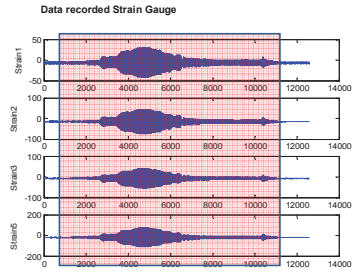


CH3





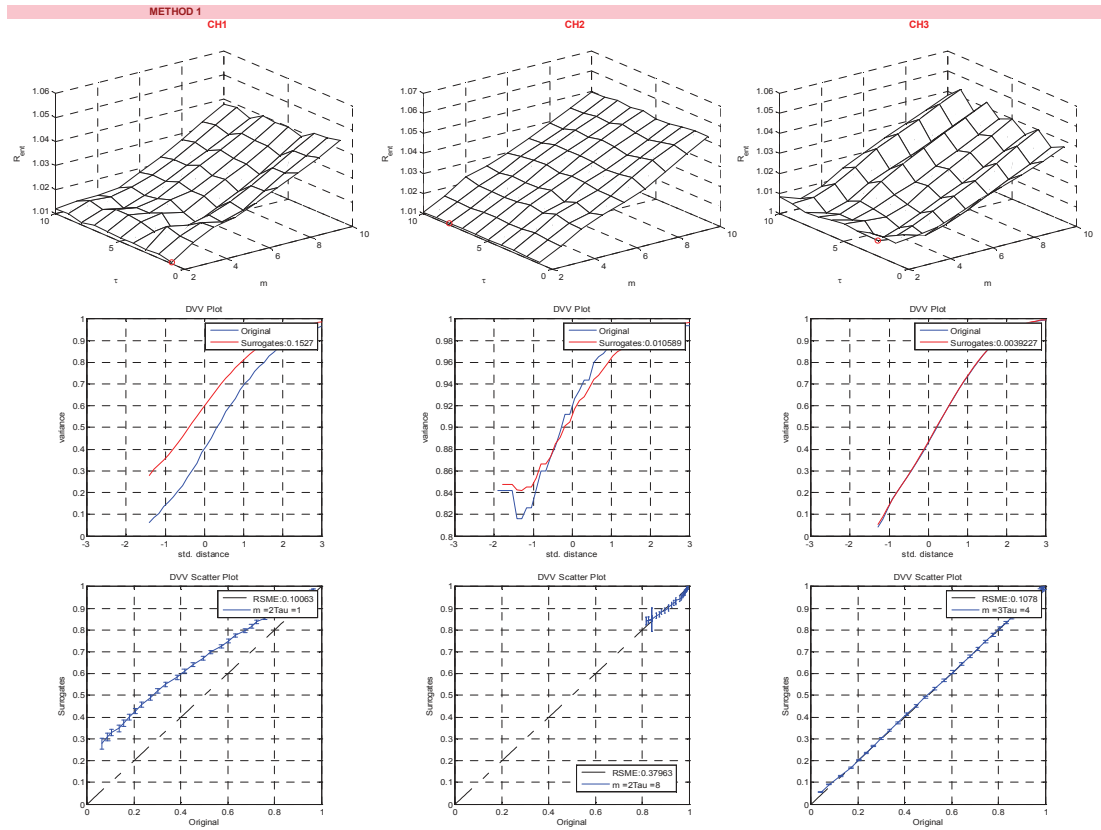
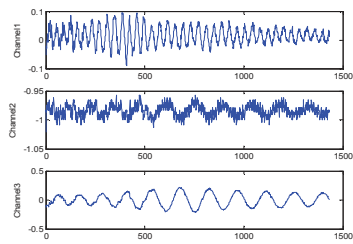




EXPERIMENT	VARIABLES		METHOD 1				METHOD 2				METHOD 3			
			best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME
12	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0 Hz 5.5 Hz 6.0 Hz 6.5 Hz 7.0 Hz Focus at mid strain gauge	CH1	2	1	0.1527	0.1006	4	1	0.0109	0.0823	3	1	0.0125	0.0867
		CH2	2	8	0.0106	0.3796	22	1	0.0315	0.2460	3	1	0.0153	0.1746
		CH3	4	4	0.0039	0.1078	1	1	0.0044	0.1585	3	1	0.0020	0.1523
		LDVg	10	2	0.1702	0.1444	22	1	0.1419	0.1289	3	1	0.0433	0.1084
		LDV1	7	9	0.1465	0.1440	2	1	0.0104	0.1702	3	1	0.0289	0.1622
		LDV2	10	9	0.3163	0.1872	24	1	0.2205	0.1337	3	1	0.2131	0.1233
		Strain 1	10	10	0.2410	0.1465	5	1	0.2325	0.1457	3	1	0.2172	0.1187
		Strain 2	10	10	0.2919	0.1654	23	1	0.3287	0.1957	3	1	0.1936	0.1191
		Strain 3	10	9	0.3749	0.2301	18	1	0.4264	0.2194	3	1	0.2271	0.1299
		Strain 4	10	9	0.3499	0.2086	7	1	0.2936	0.1784	3	1	0.2519	0.1433

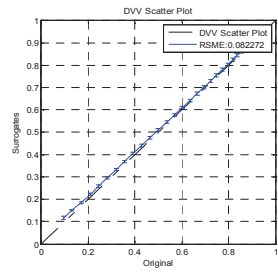
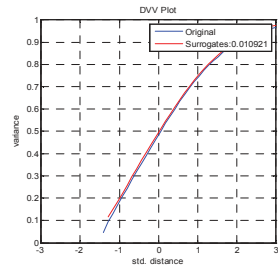
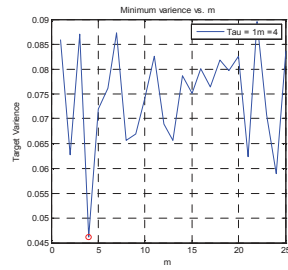
Data recorded 3D Accelerometer

Data analysed 3D Accelerometer

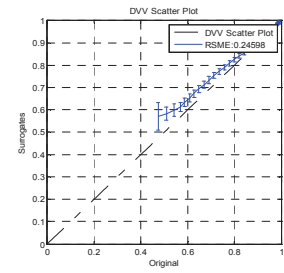
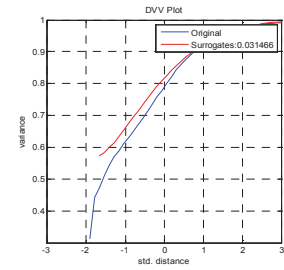
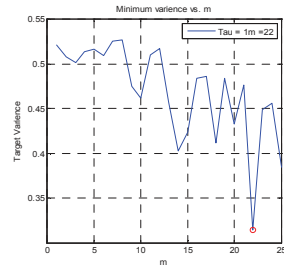


METHOD 2

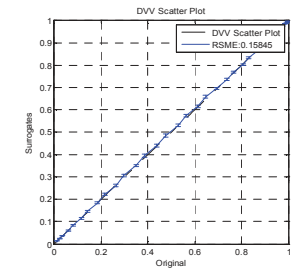
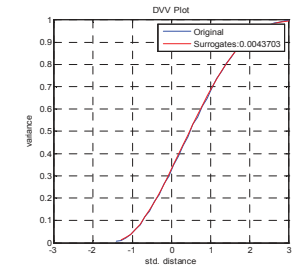
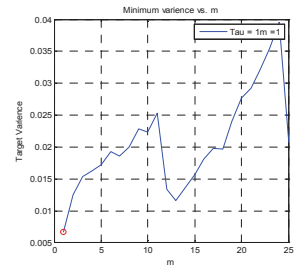
CH1



CH2

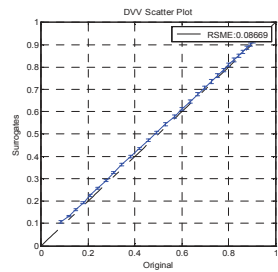
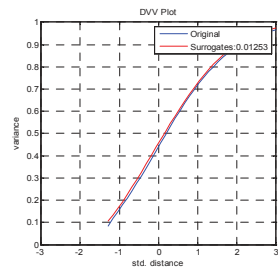


CH3

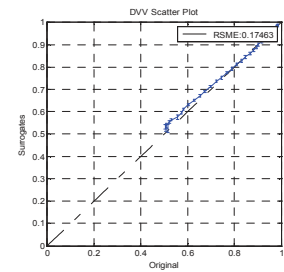
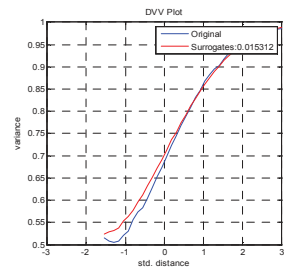


METHOD 3

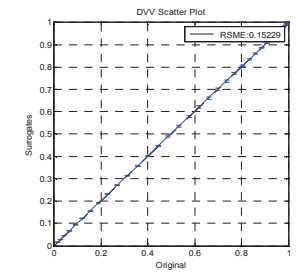
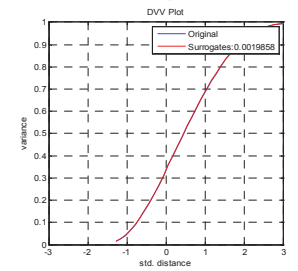
CH1

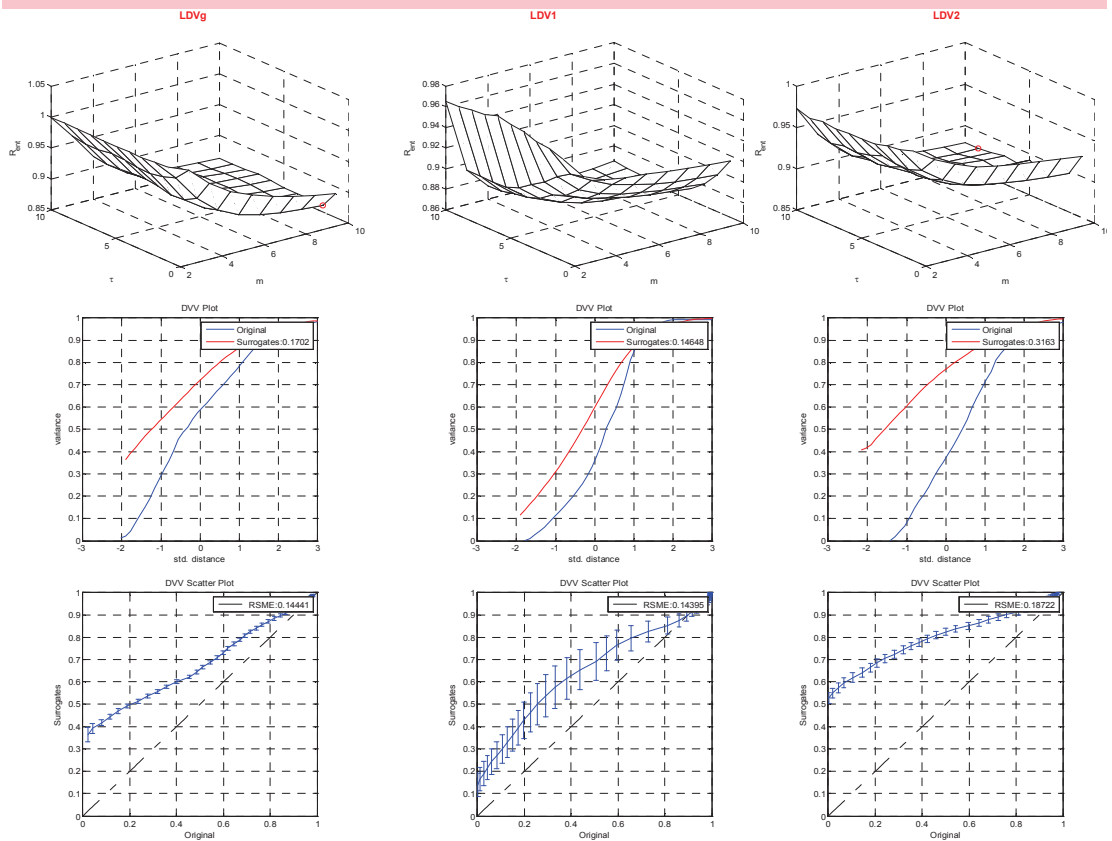
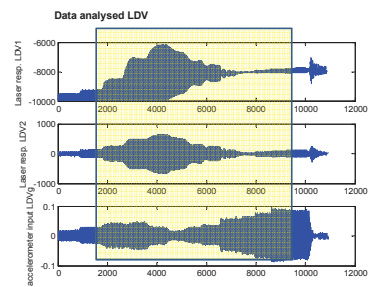
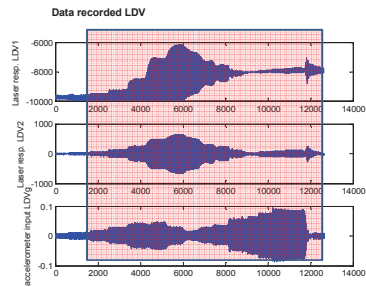
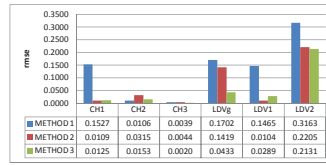
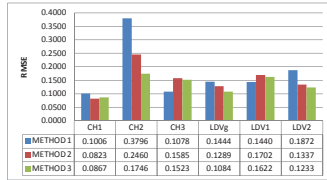


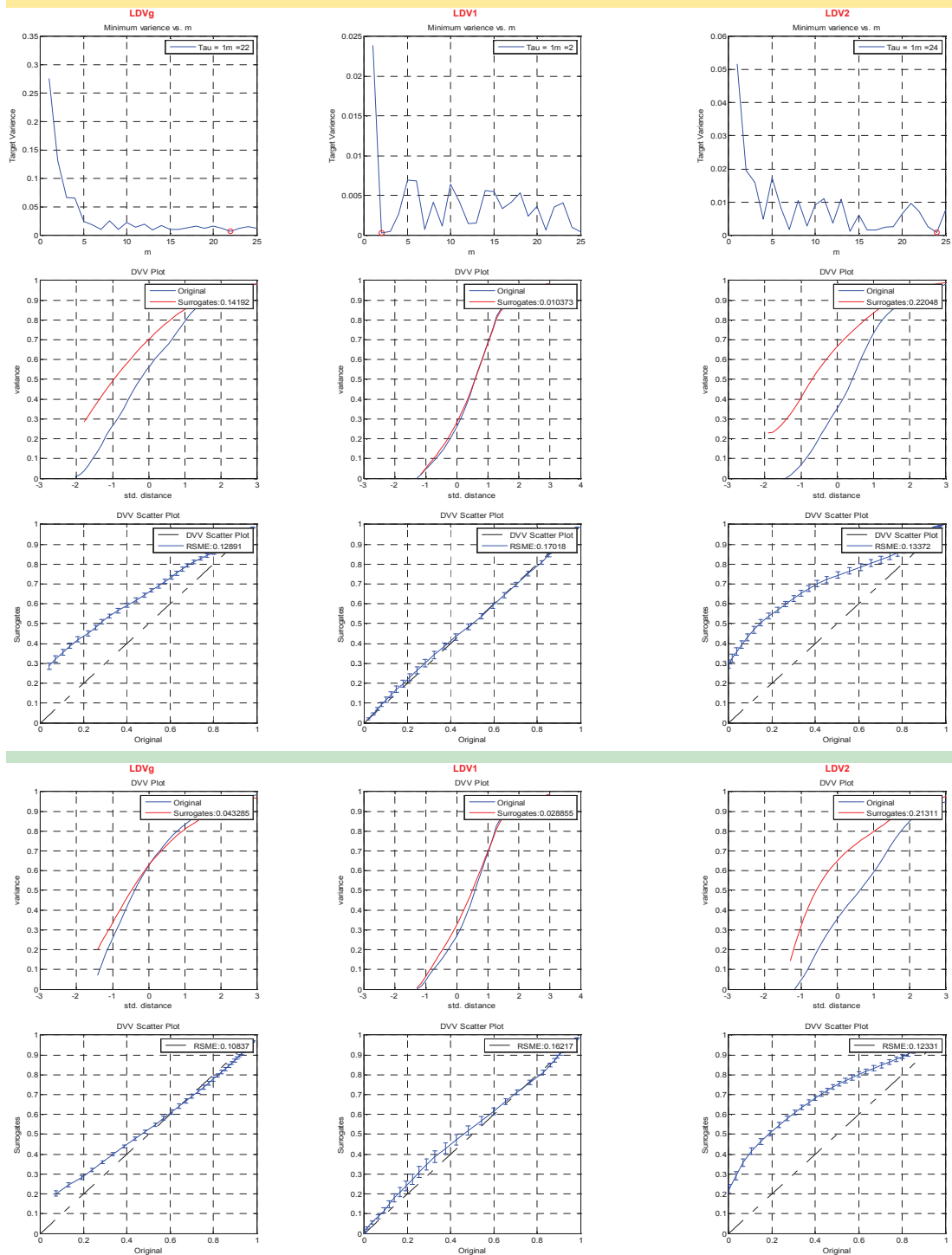
CH2

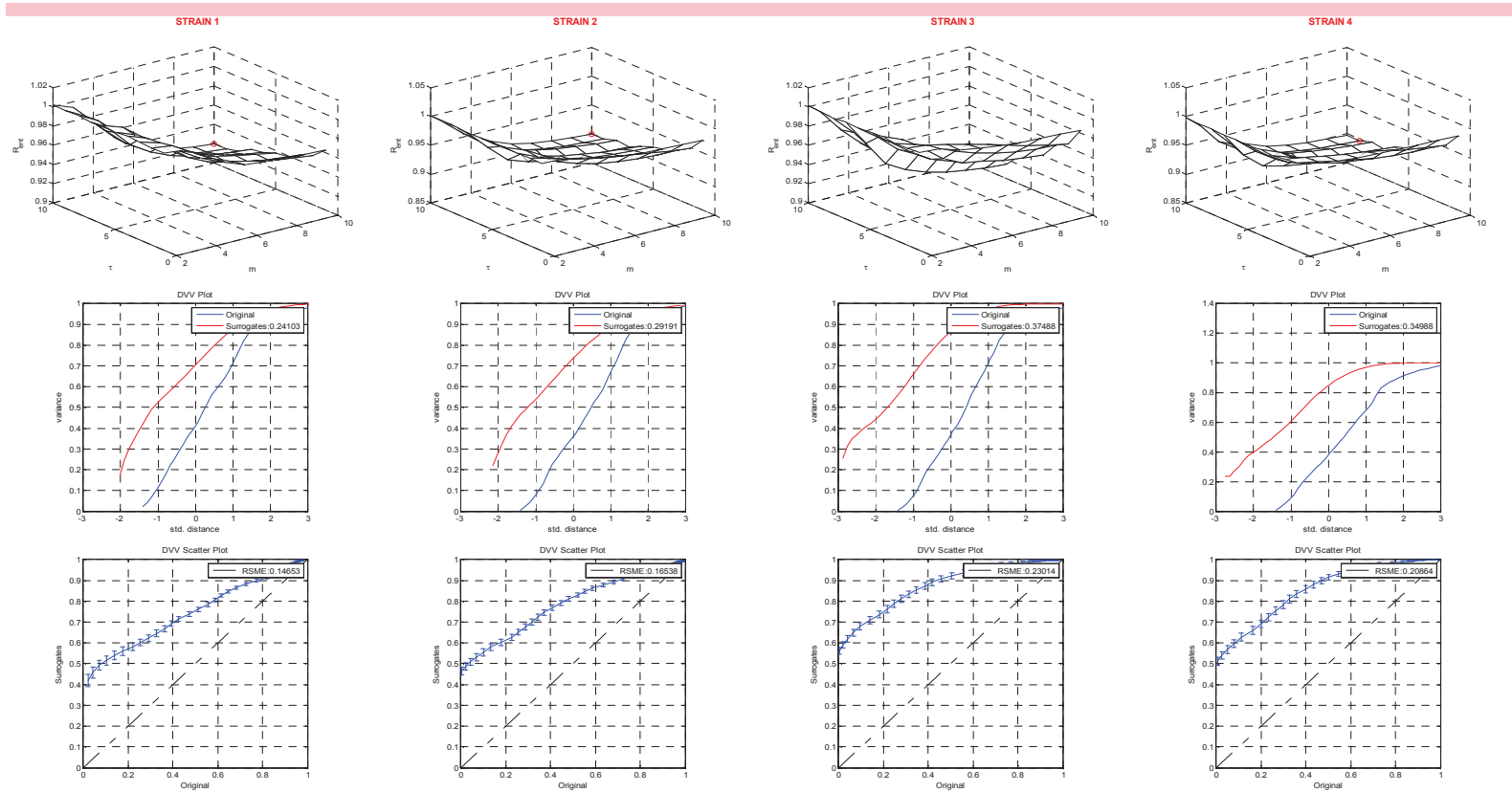
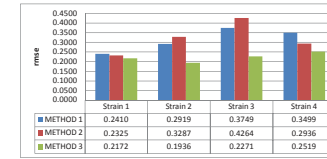
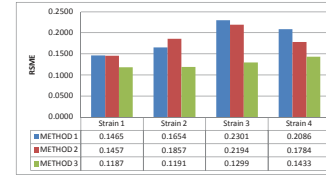
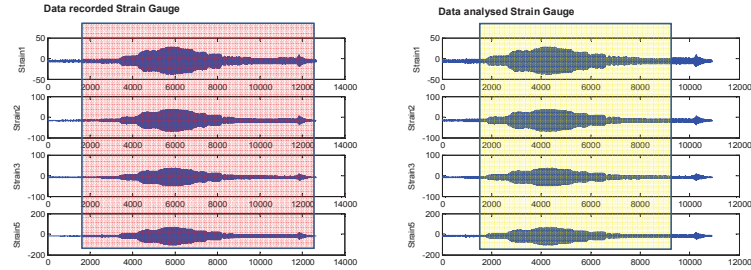


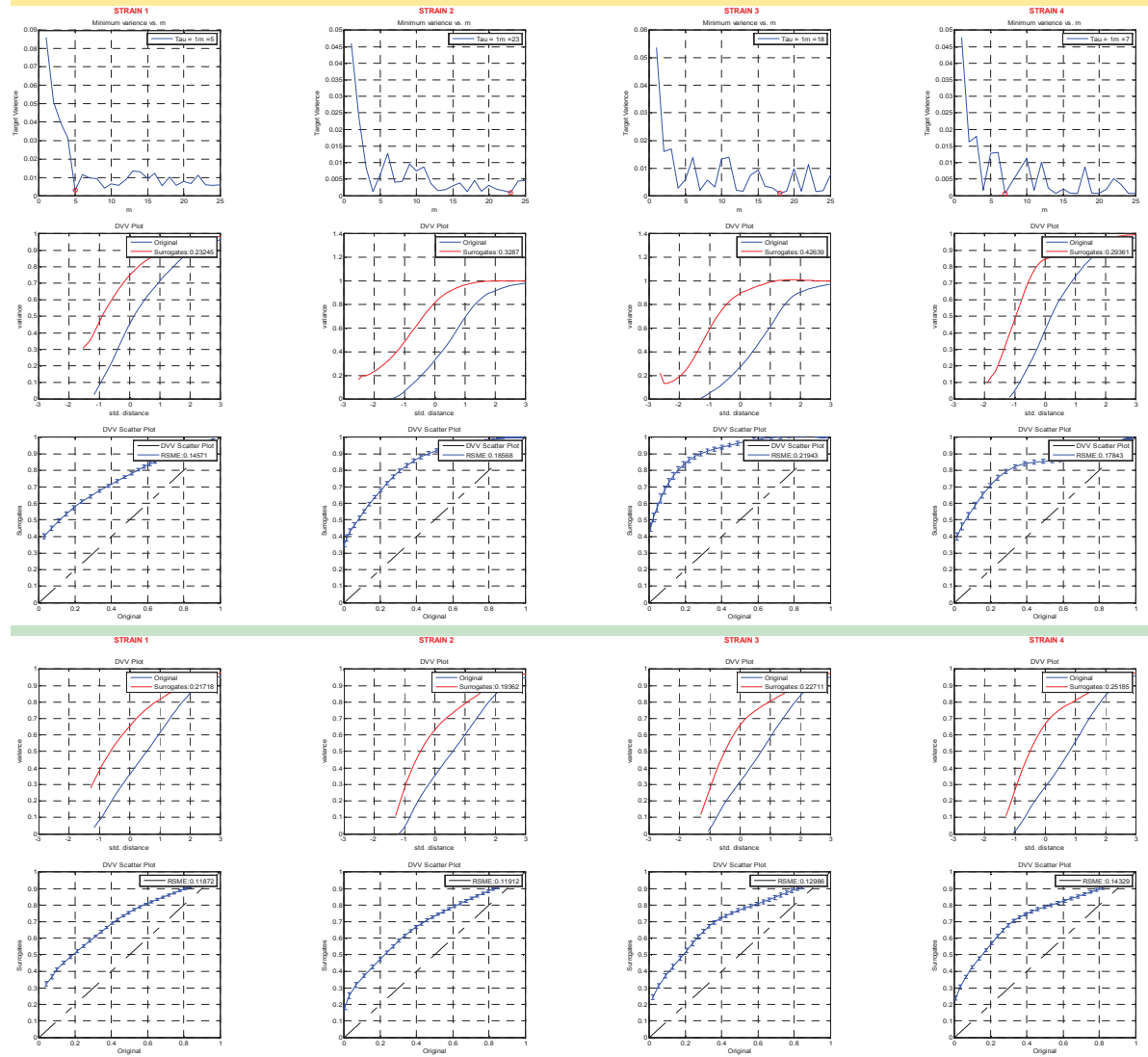
CH3





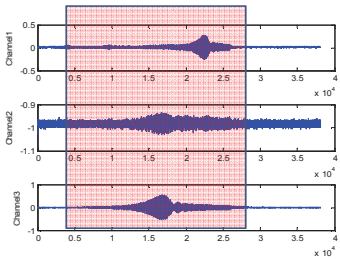




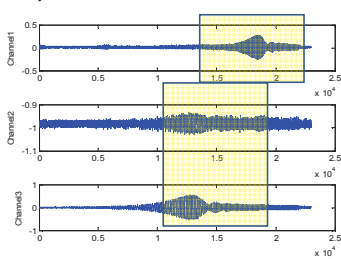


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME	
13	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at mid strain gauge	CH1	3	9	0.0425	0.2044	21	1	0.0639	0.3005	3	1	0.0241	0.2905
		CH2	8	9	0.1169	0.2192	17	1	0.0798	0.1423	3	1	0.0533	0.0738
		CH3	3	8	0.0259	0.1349	22	1	0.0196	0.1741	3	1	0.0227	0.2591
		LDVg	10	2	0.1912	0.1799	7	1	0.1105	0.1670	3	1	0.0619	0.1380
		LDV1	6	6	0.1866	0.2810	5	1	0.0367	0.3386	3	1	0.0668	0.3511
		LDV2	7	7	0.0617	0.2329	24	1	0.5283	0.3078	3	1	0.4848	0.3156
		Strain 1	10	10	0.0882	0.1039	22	1	0.4030	0.2106	3	1	0.2604	0.1358
		Strain 2	9	9	0.0766	0.1423	7	1	0.2112	0.1369	3	1	0.2040	0.1564
		Strain 3	10	9	0.3634	0.1895	5	1	0.2536	0.1320	3	1	0.2723	0.1620
		Strain 4	9	9	0.3700	0.1903	4	1	0.2454	0.1417	3	1	0.2522	0.1643

Data recorded 3D Accelerometer

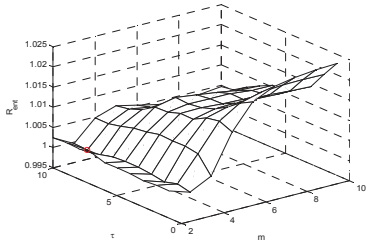


Data analysed 3D Accelerometer

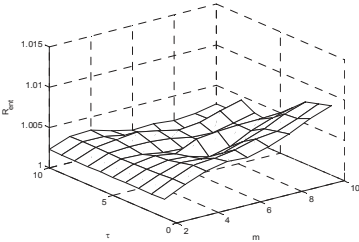


METHOD 1

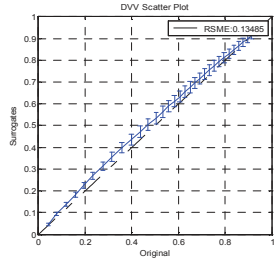
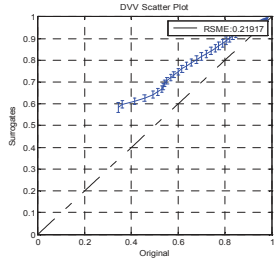
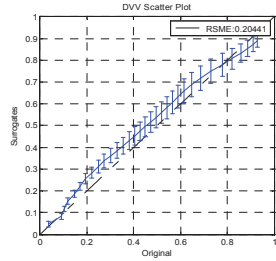
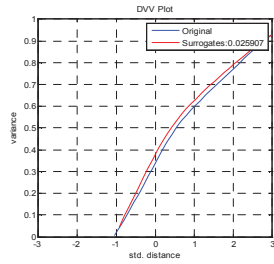
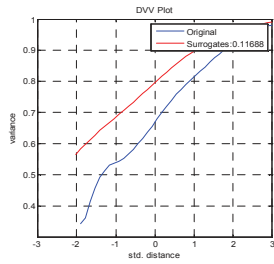
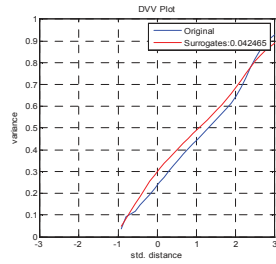
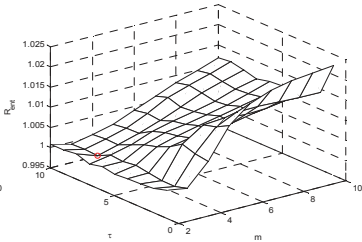
CH1



CH2

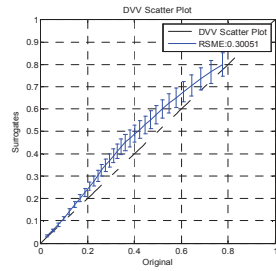
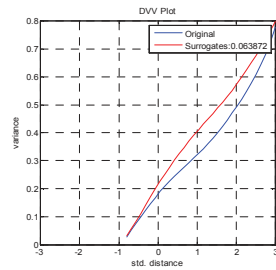
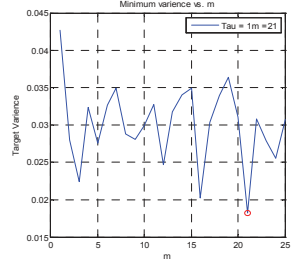


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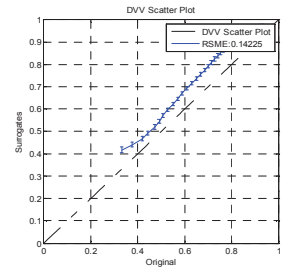
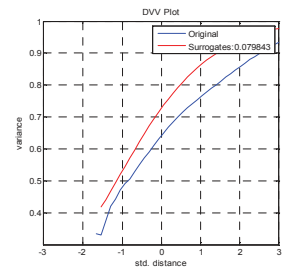
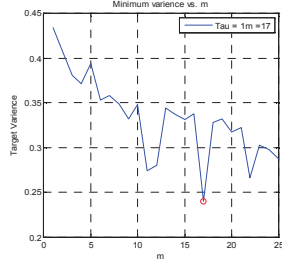


METHOD 2

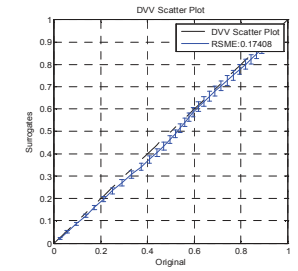
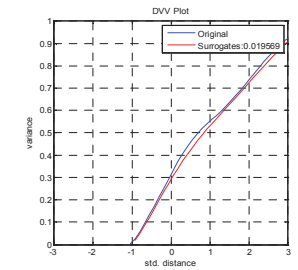
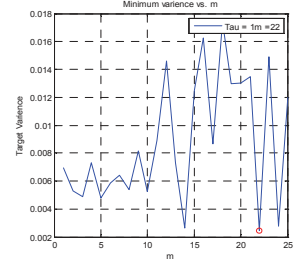
CH1



CH2

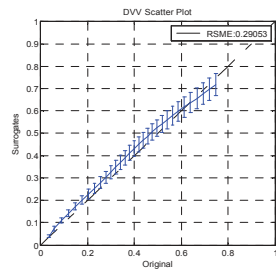
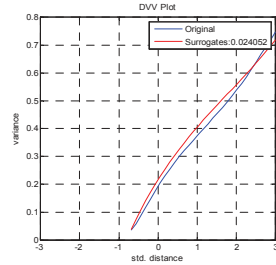


CH3

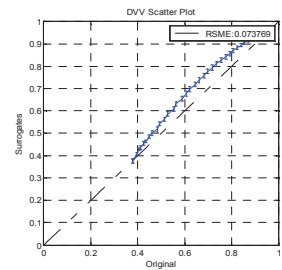
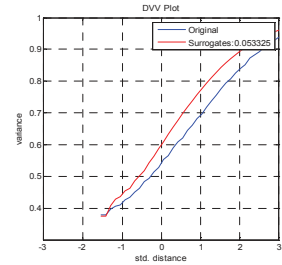


METHOD 3

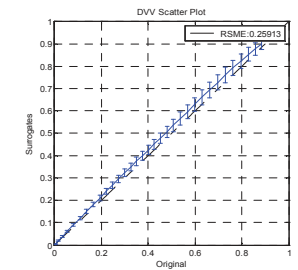
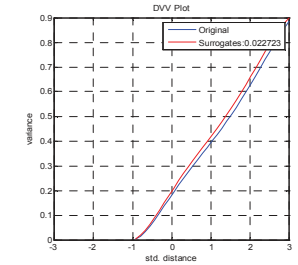
CH1

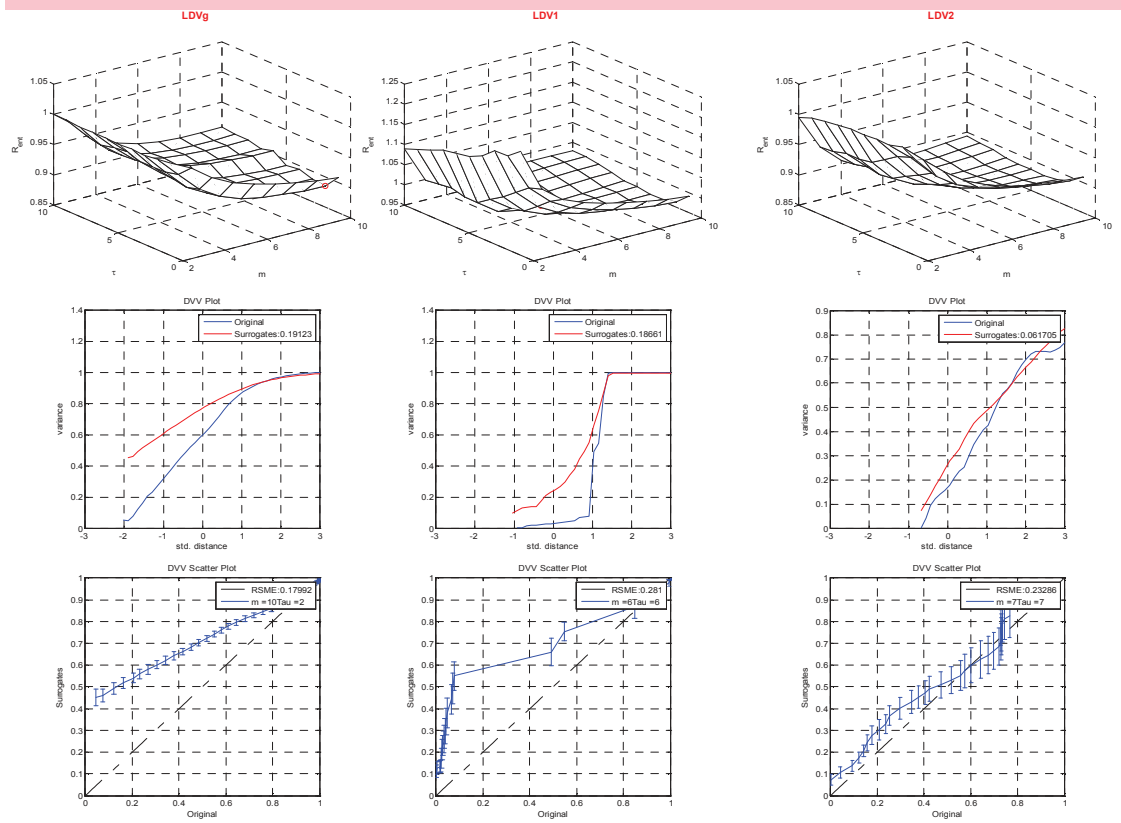
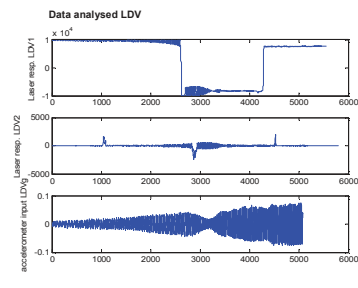
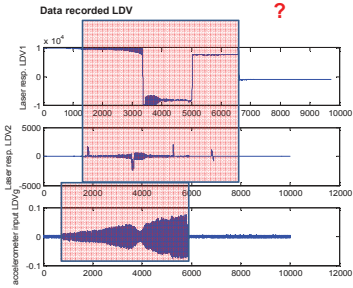
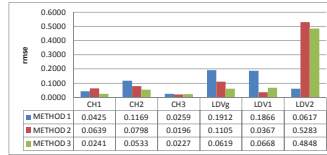
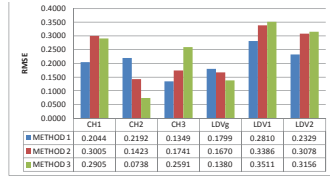


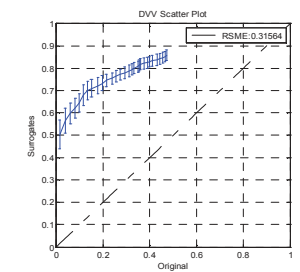
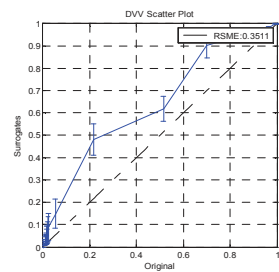
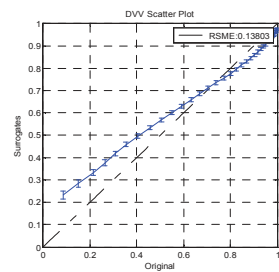
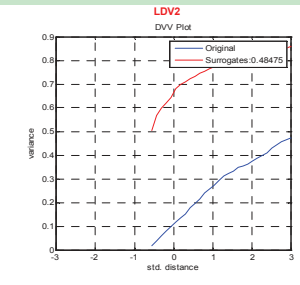
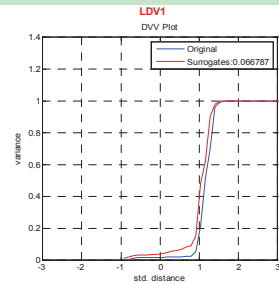
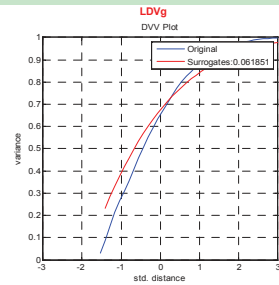
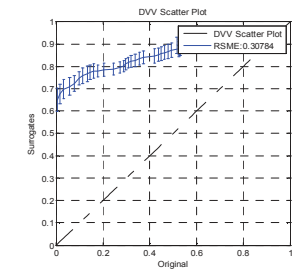
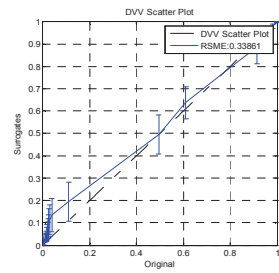
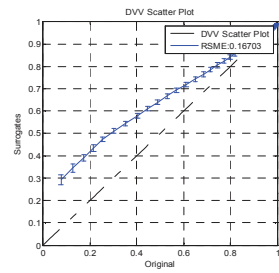
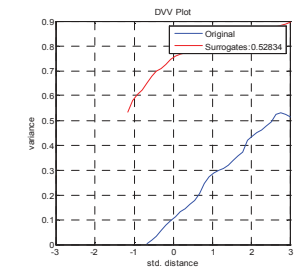
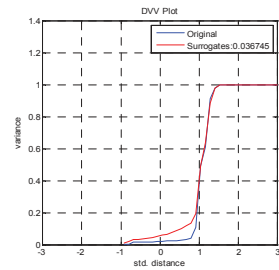
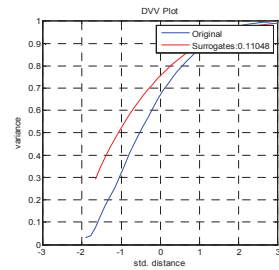
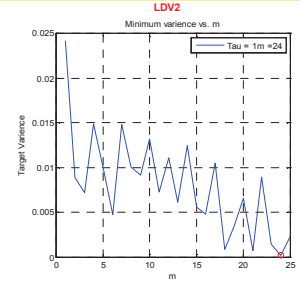
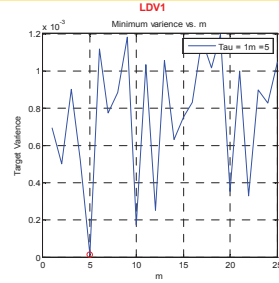
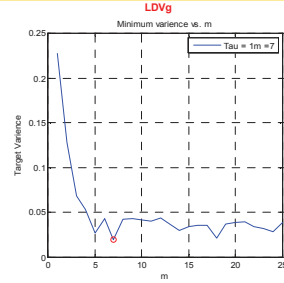
CH2

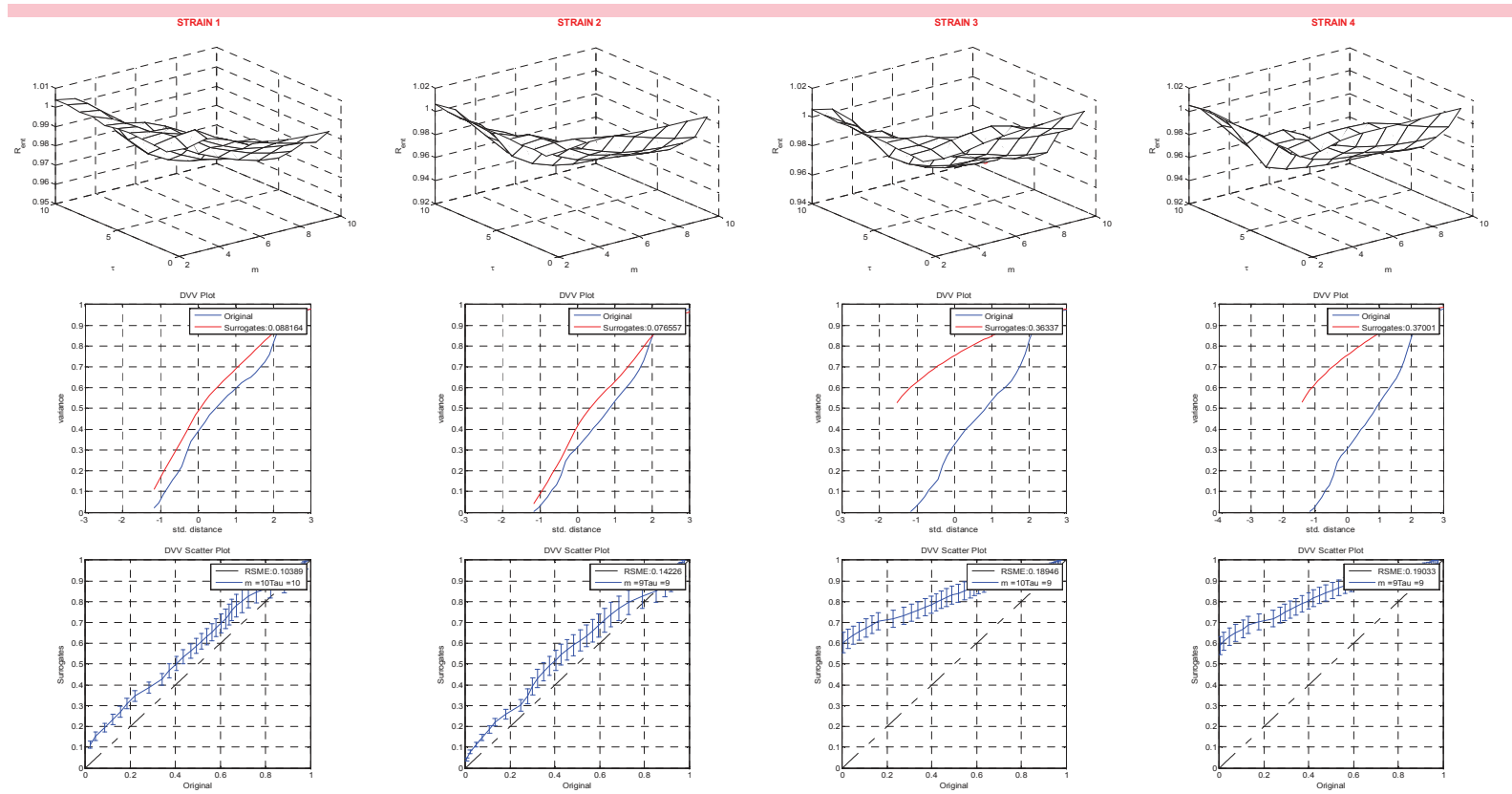
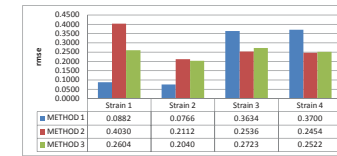
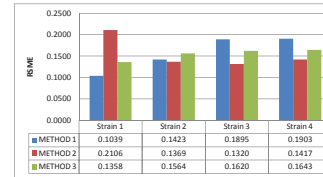
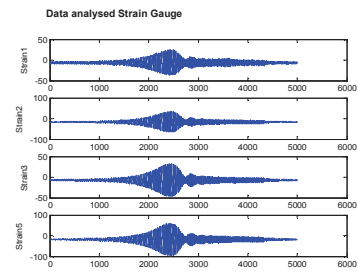
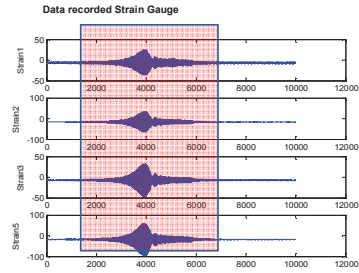


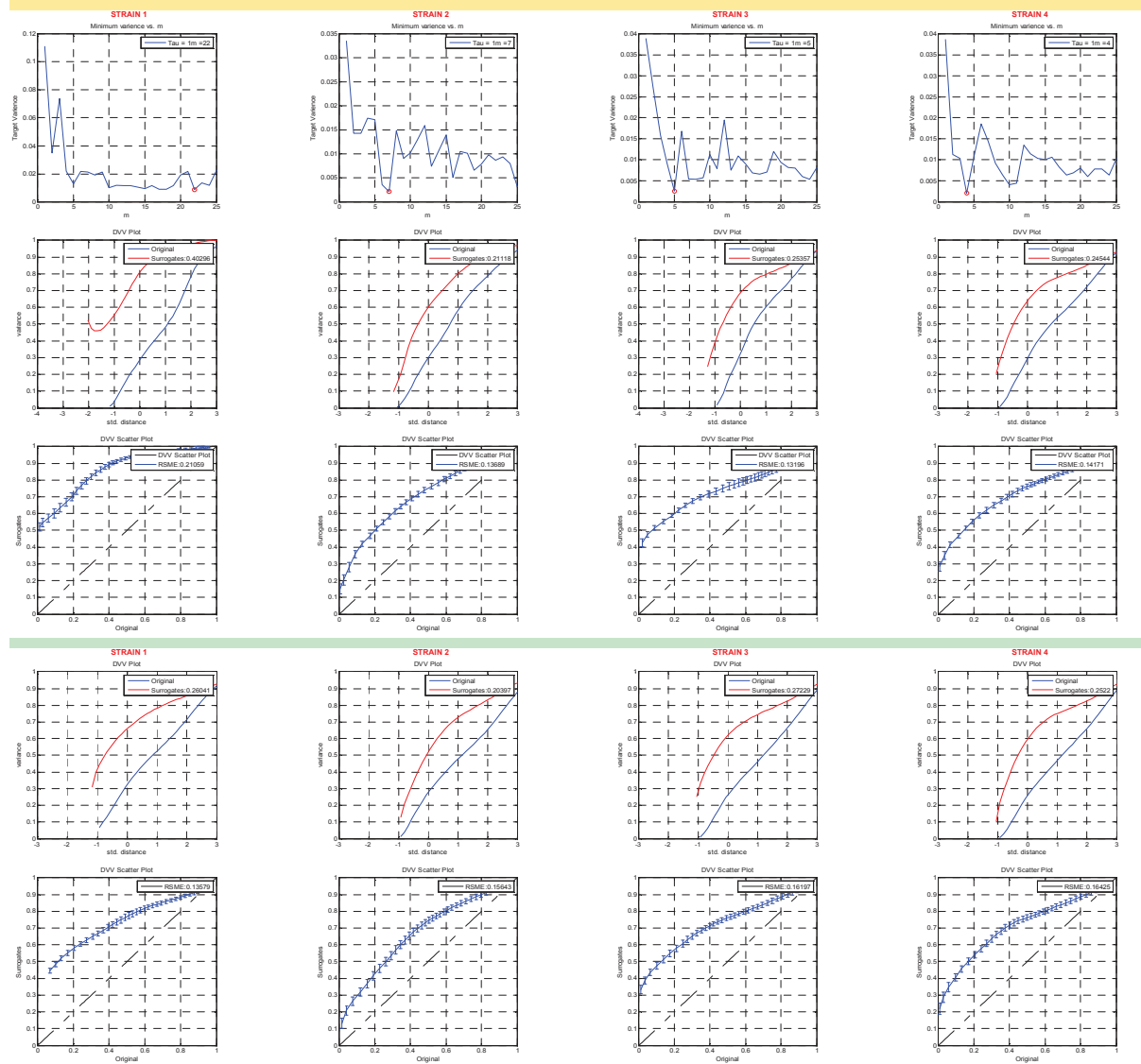
CH3





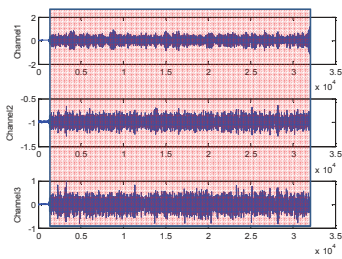




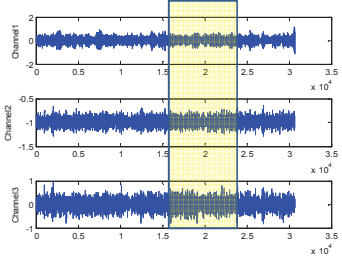


EXPERIMENT	VARIABLES	METHOD 1				METHOD 2				METHOD 3				
		best m	best t	rsme	RSME	calc m	t	rsme	RSME	set m	set t	rsme	RSME	
14	Loading White noise 4.336Hz at the peak next 23Hz Focus at mid strain gauge	CH1	5	1	0.0072	0.0756	24	1	0.0156	0.0853	3	1	0.0080	0.0732
		CH2	5	1	0.0372	0.1616	14	1	0.0489	0.1552	3	1	0.0277	0.1218
		CH3	4	1	0.0190	0.1089	21	1	0.0537	0.1977	3	1	0.0153	0.0961
		LDVg	8	1	0.1692	0.3932	25	1	0.0381	0.4272	3	1	0.0524	0.2549
		LDV1	2	2	0.0030	0.2366	3	1	0.0044	0.1145	3	1	0.0019	0.1134
		LDV2	2	4	0.1031	0.3799	4	1	0.2186	0.2779	3	1	0.2233	0.2656
		Strain 1	2	5	0.0023	0.3227	18	1	0.2176	0.4070	3	1	0.2059	0.3447
		Strain 2	3	5	0.0068	0.2992	22	1	0.0866	0.2729	3	1	0.0637	0.2257
		Strain 3	2	9	0.2249	0.3144	25	1	0.1299	0.1882	3	1	0.1149	0.1277
		Strain 4	7	2	0.2378	0.2272	18	1	0.0800	0.1192	3	1	0.0721	0.0910

Data recorded 3D Accelerometer

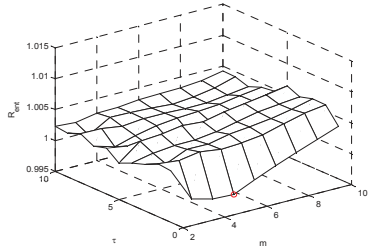


Data analysed 3D Accelerometer

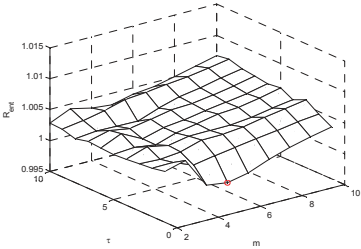


METHOD 1

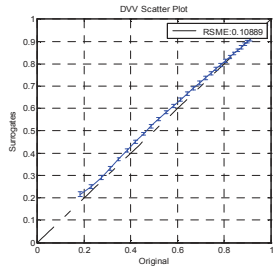
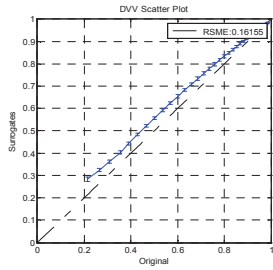
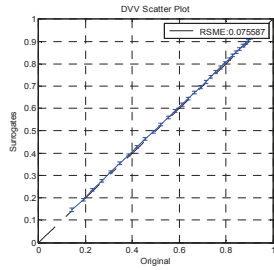
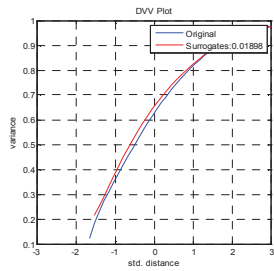
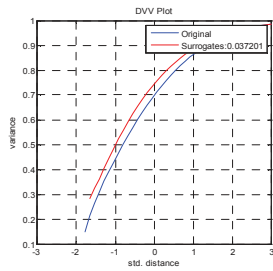
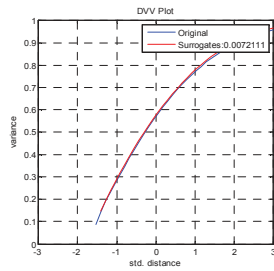
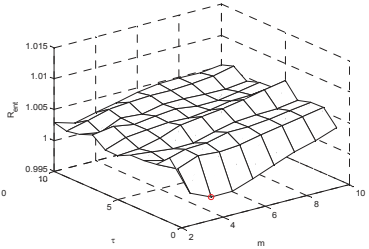
CH1



CH2

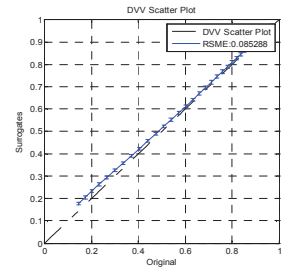
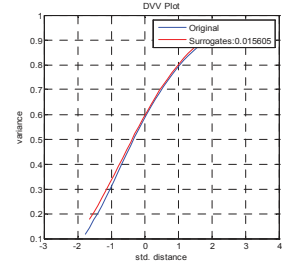
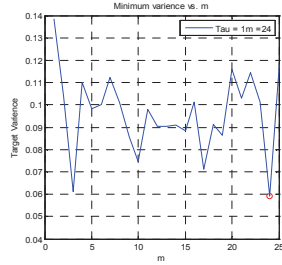


CH3

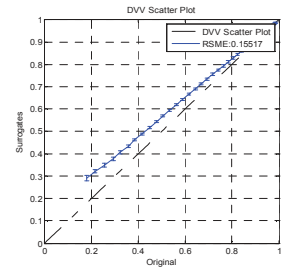
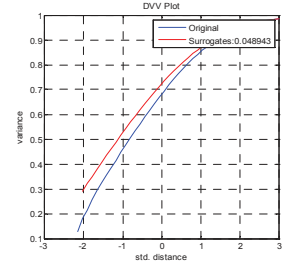
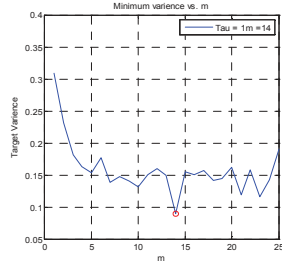


METHOD 2

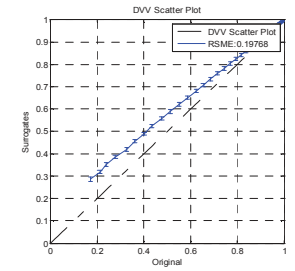
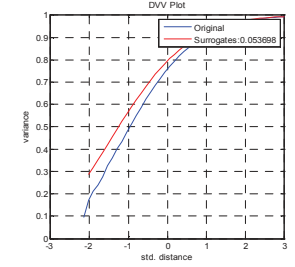
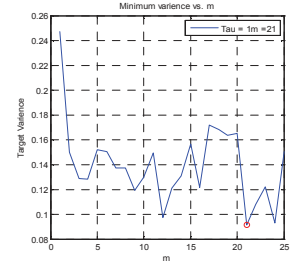
CH1



CH2

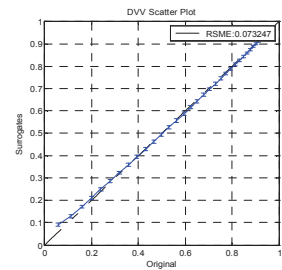
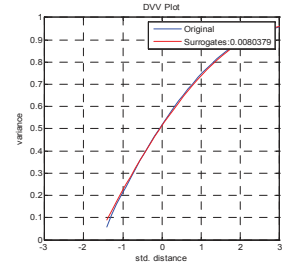


CH3

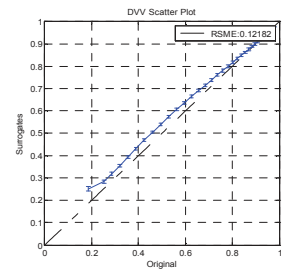
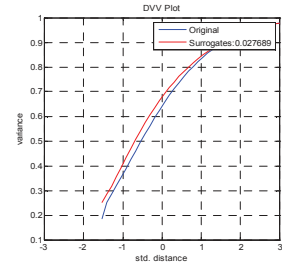


METHOD 3

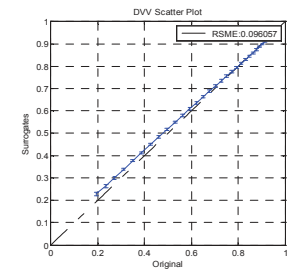
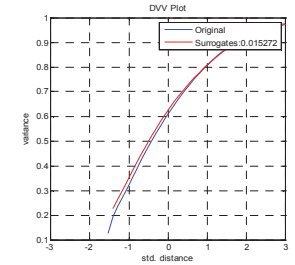
CH1

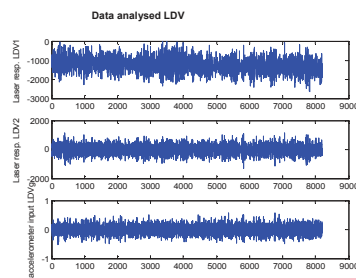
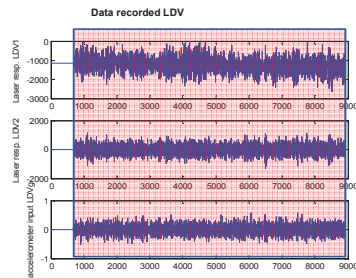
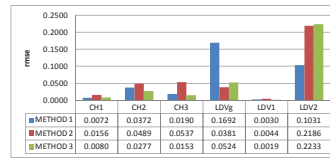
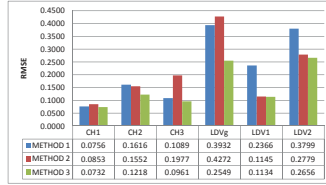


CH2

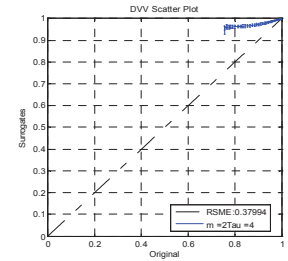
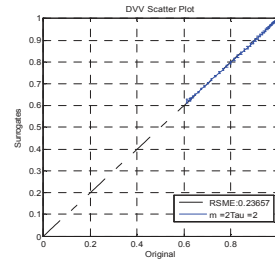
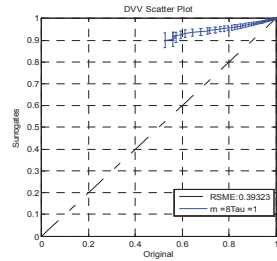
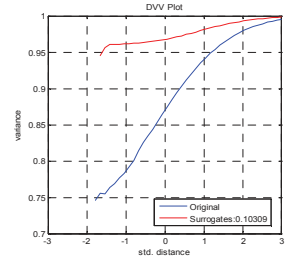
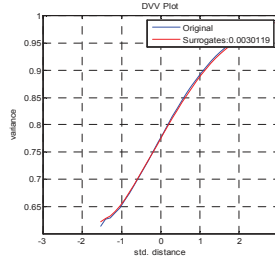
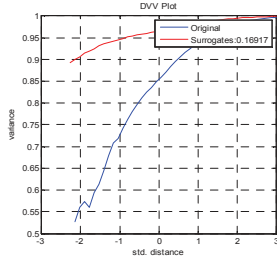
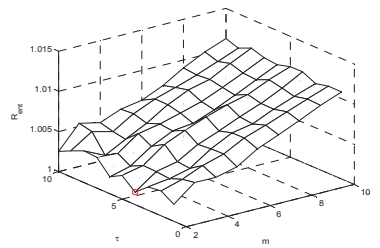
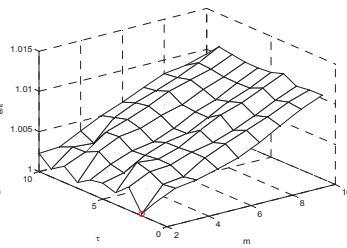
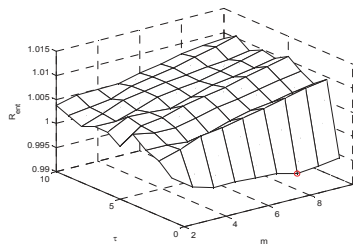


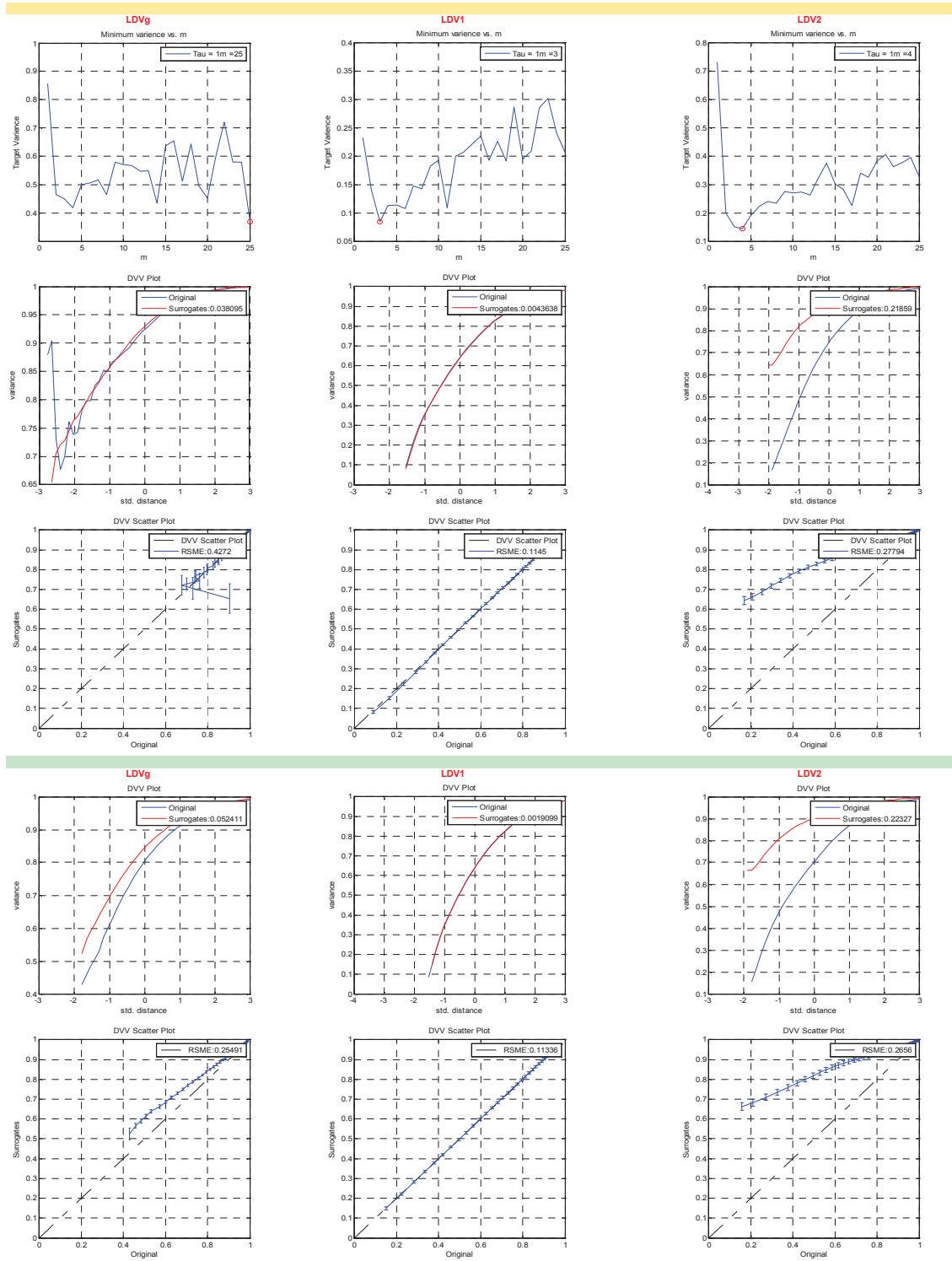
CH3

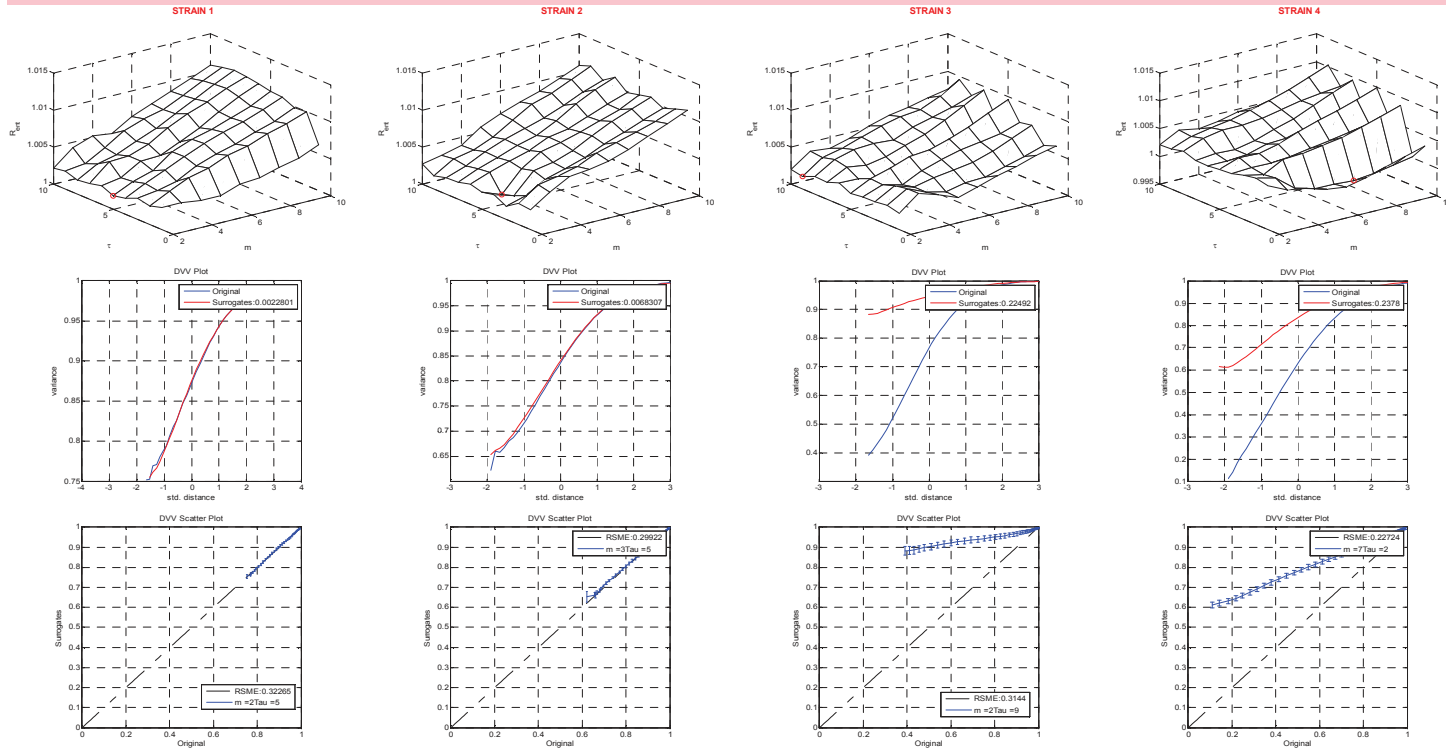
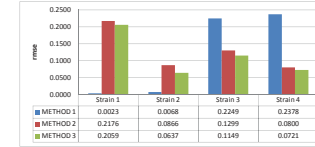
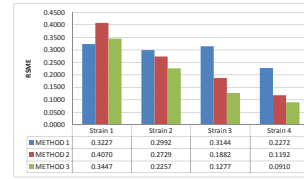
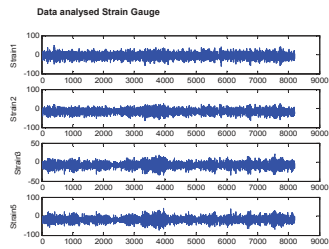
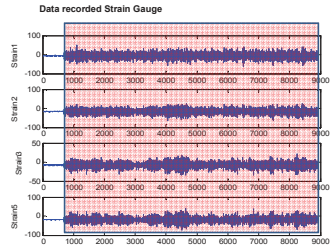




LDVg **LDV1** **LDV2**

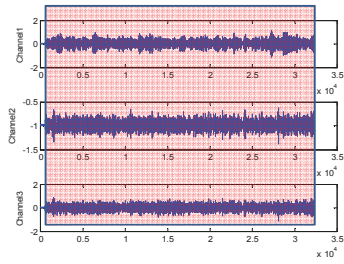




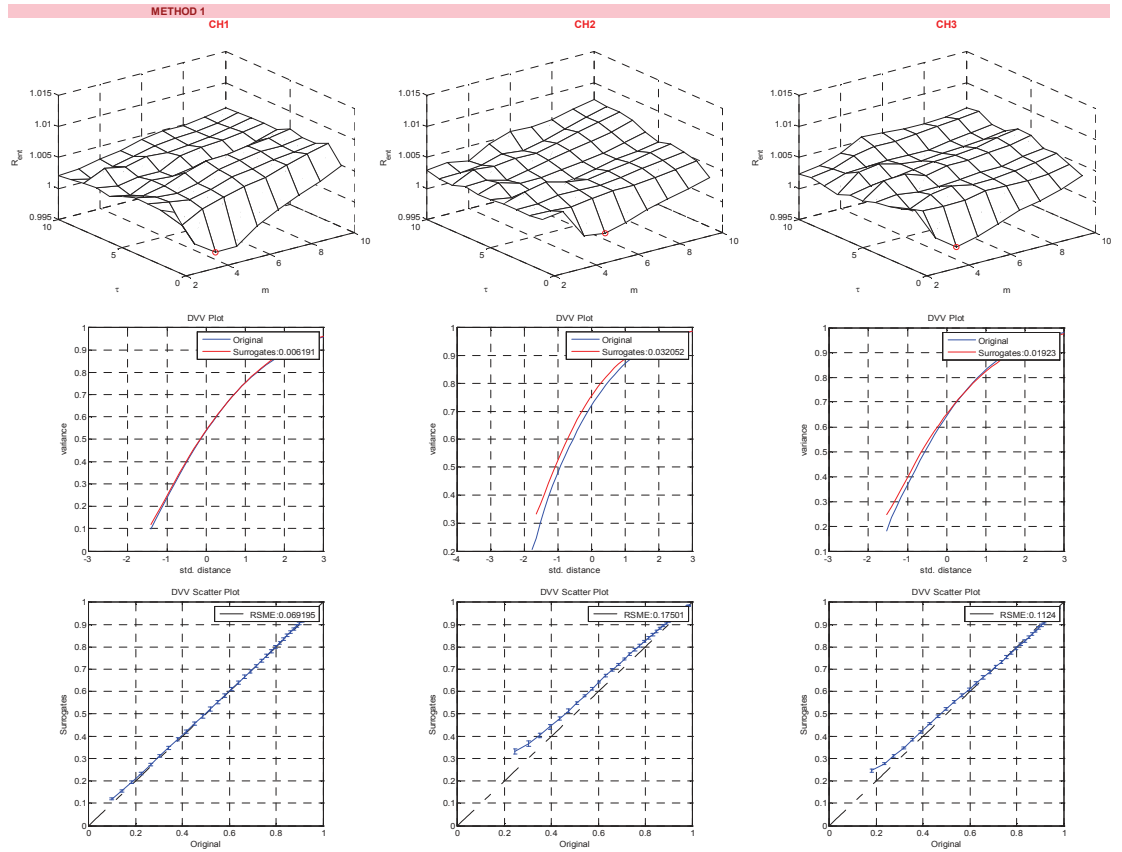
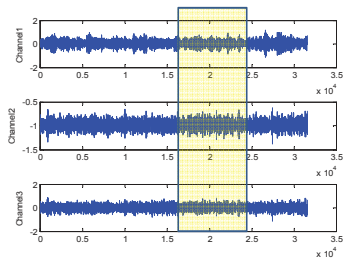


EXPERIMENT	VARIABLES		METHOD 1				METHOD 2				METHOD 3			
			best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME
15	Loading White noise 4.336Hz at the peak next 23Hz Focus at bottom strain gauge	CH1	4	1	0.0062	0.0692	5	1	0.0066	0.0772	3	1	0.0038	0.0668
		CH2	5	1	0.0321	0.1750	22	1	0.0695	0.1675	3	1	0.0206	0.1353
		CH3	4	1	0.0192	0.1124	17	1	0.0467	0.1979	3	1	0.0168	0.0963
		LDVg	8	1	0.0505	0.3124	9	1	0.0654	0.3185	3	1	0.0442	0.2607
		LDV1	2	10	0.0086	0.1173	19	1	0.0120	0.0846	3	1	0.0041	0.1057
		LDV2	6	1	0.3039	0.3063	18	1	0.3192	0.3524	3	1	0.2591	0.2782
		Strain 1	8	1	0.3199	0.3504	14	1	0.3787	0.3699	3	1	0.2443	0.3280
		Strain 2	7	7	0.1514	0.3172	19	1	0.1445	0.2367	3	1	0.2132	0.2352
		Strain 3	10	6	0.1905	0.2279	18	1	0.1627	0.1652	3	1	0.2765	0.1664
		Strain 4	10	10	0.1453	0.2298	19	1	0.0940	0.1269	3	1	0.2801	0.1815

Data recorded 3D Accelerometer

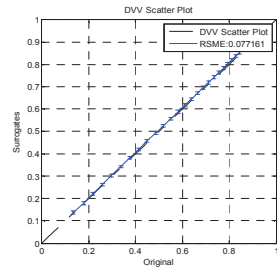
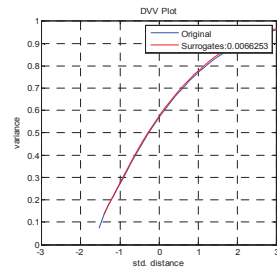
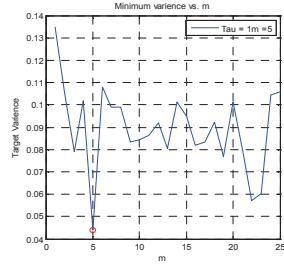


Data analysed 3D Accelerometer

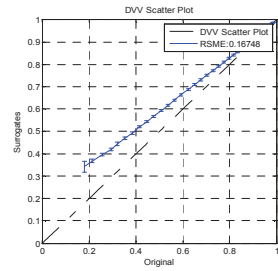
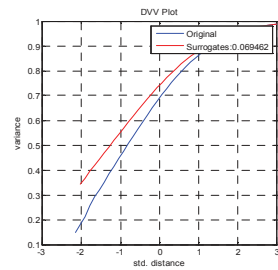
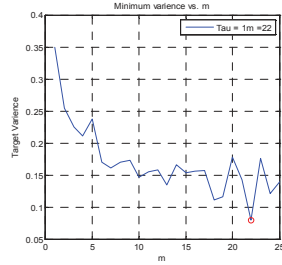


METHOD 2

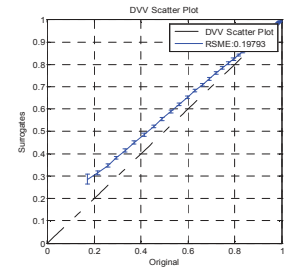
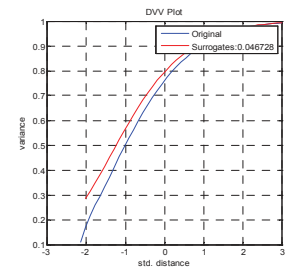
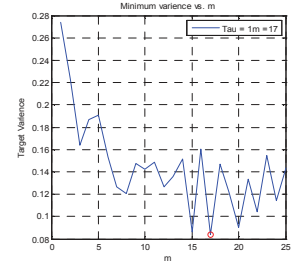
CH1



CH2

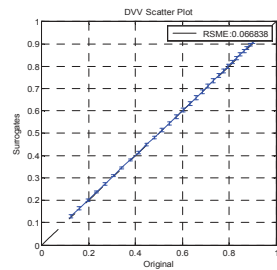
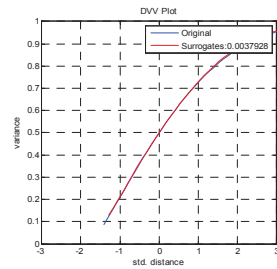


CH3

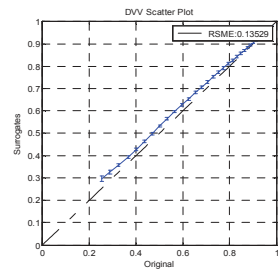
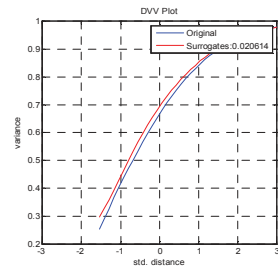


METHOD 3

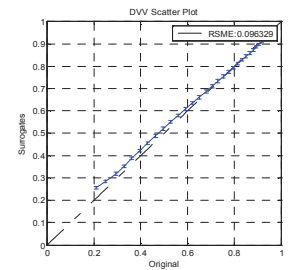
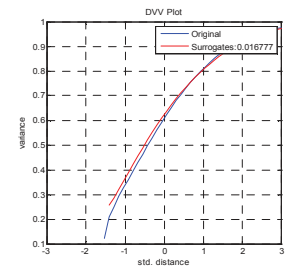
CH1

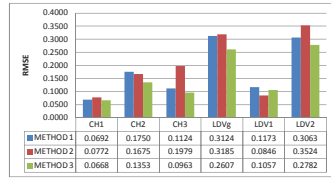


CH2

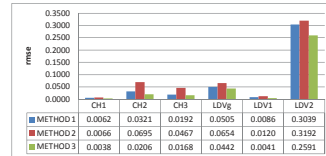


CH3

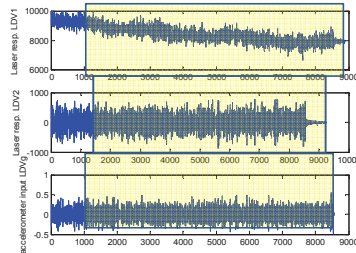
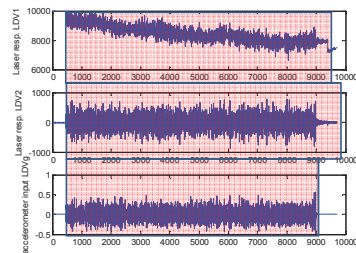




Data recorded LDV



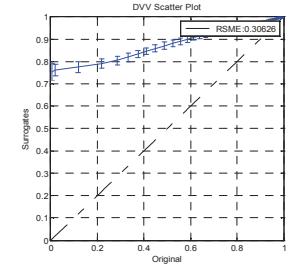
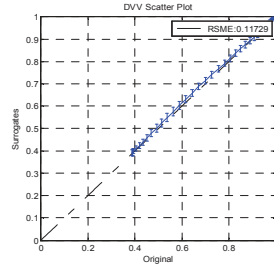
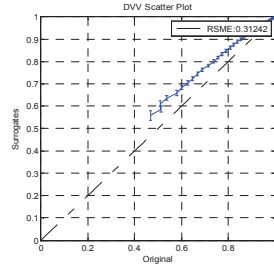
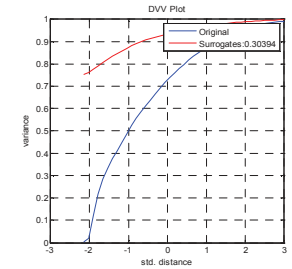
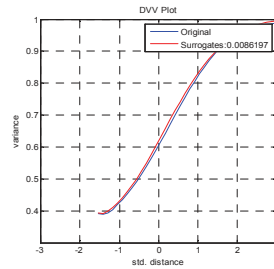
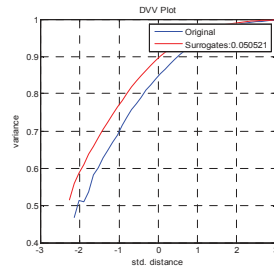
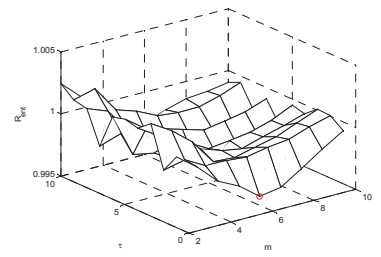
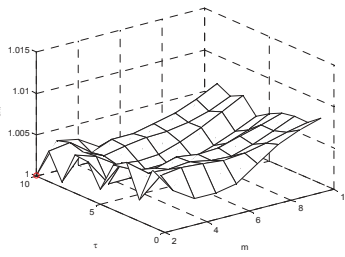
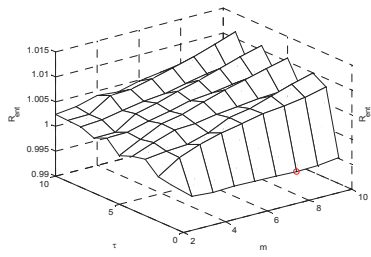
Data analysed LDV

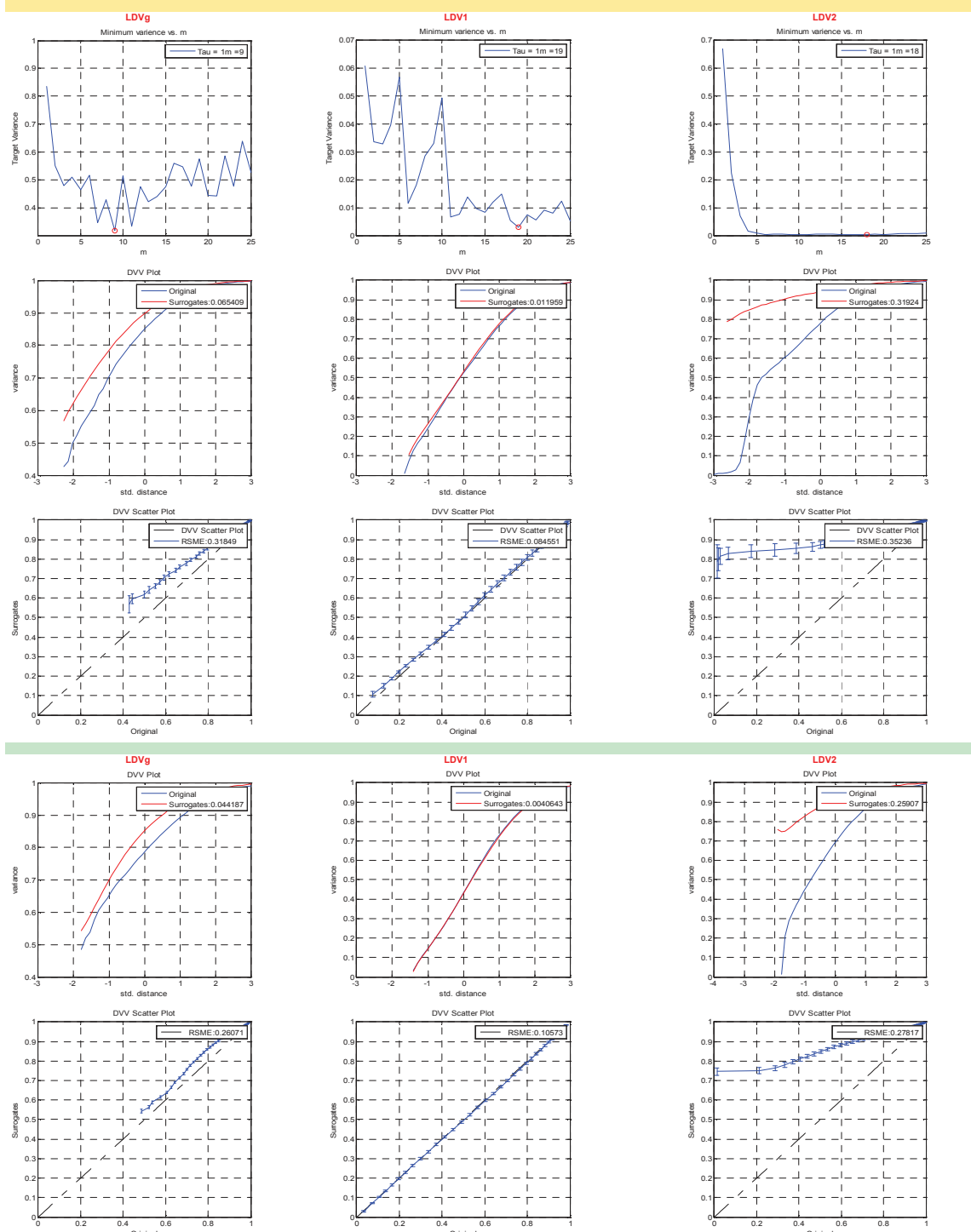


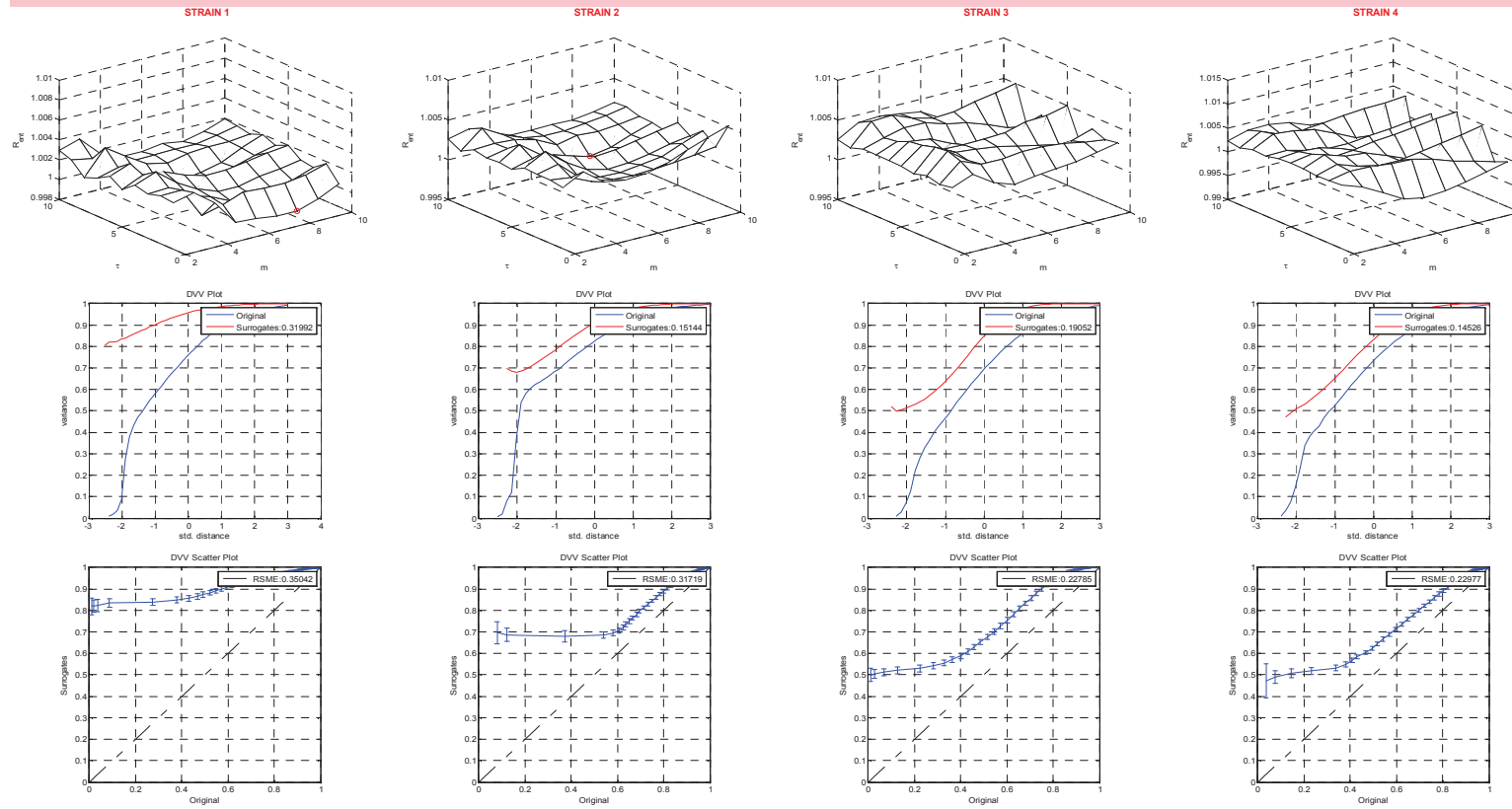
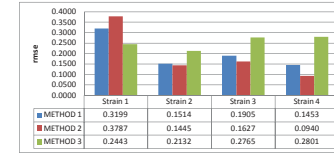
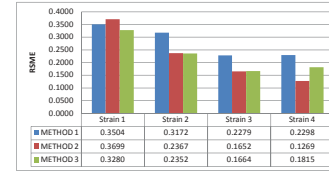
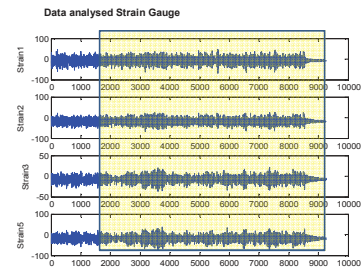
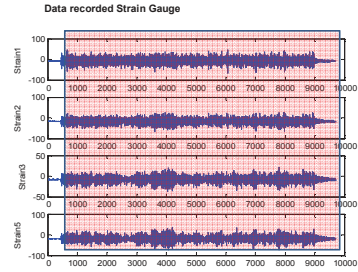
LDVg

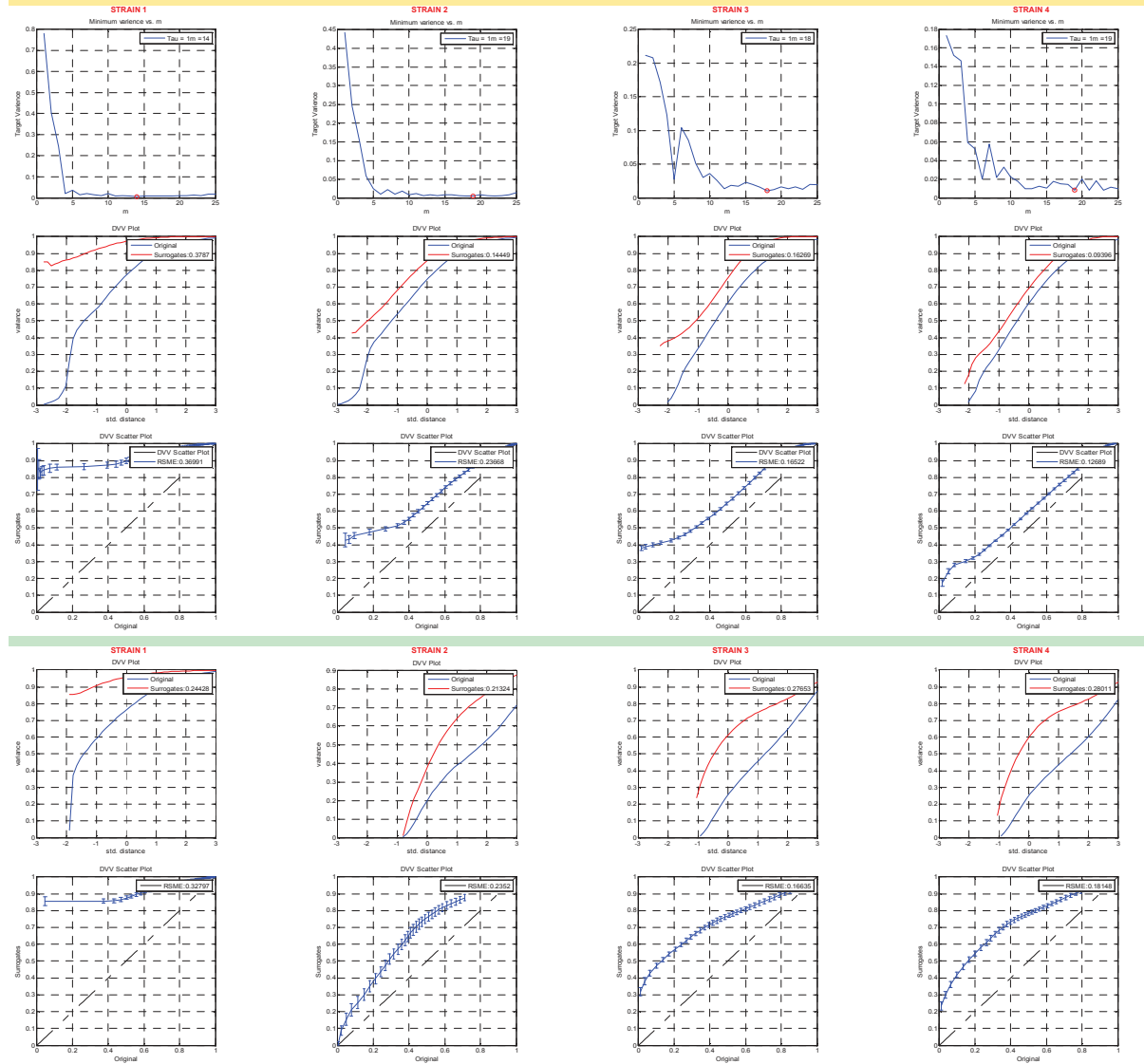
LDV1

LDV2



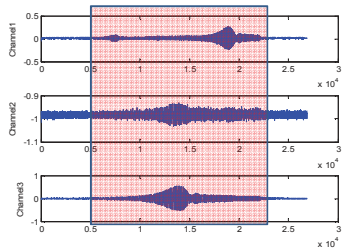




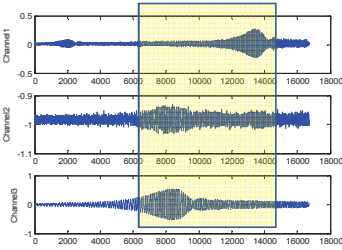


EXPERIMENT	VARIABLES	METHOD 1					METHOD 2					METHOD 3				
		best m	best τ	rsme	RSME		calc m	τ	rsme	RSME		set m	set τ	rsme	RSME	
16	Loading Sine Sweep 2.0 Hz 6.0 Hz 60 sec Focus at bottom strain gauge	CH1	4	10	0.0716	0.1065	25	1	0.0620	0.1974	3	1	0.0354	0.2434		
		CH2	2	5	0.0396	0.2383	7	1	0.0333	0.0989	3	1	0.0144	0.0673		
		CH3	3	10	0.0141	0.1101	9	1	0.0089	0.1931	3	1	0.0087	0.2193		
		LDVg	10	2	0.1700	0.1688	21	1	0.1494	0.1387	3	1	0.0528	0.1211		
		LDV1	6	6	0.1758	0.1823	11	1	0.0872	0.1796	3	1	0.0314	0.2079		
		LDV2	8	8	0.3659	0.2303	20	1	0.3000	0.1593	3	1	0.2509	0.1316		
		Strain 1	10	10	0.1578	0.1270	9	1	0.2749	0.1510	3	1	0.2501	0.1336		
		Strain 2	9	9	0.1196	0.1483	6	1	0.2365	0.1597	3	1	0.1830	0.1559		
		Strain 3	10	10	0.4309	0.2256	10	1	0.3394	0.1691	3	1	0.2680	0.1610		
		Strain 4	9	9	0.3920	0.2015	5	1	0.2818	0.1535	3	1	0.2522	0.1629		

Data recorded 3D Accelerometer

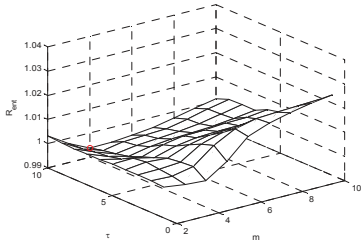


Data analysed 3D Accelerometer

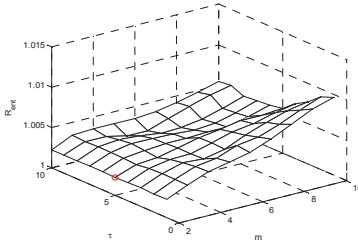


METHOD 1

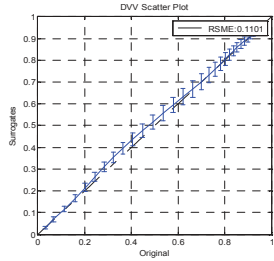
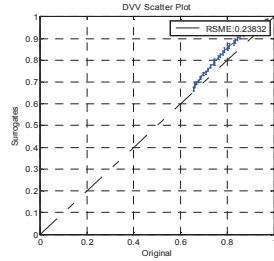
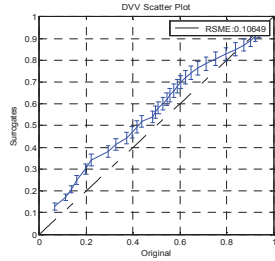
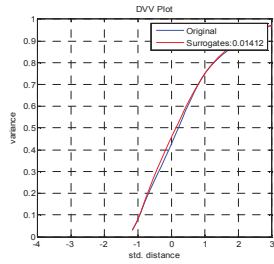
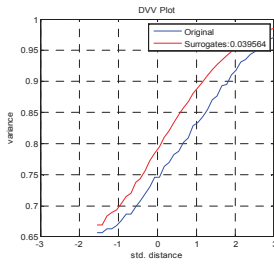
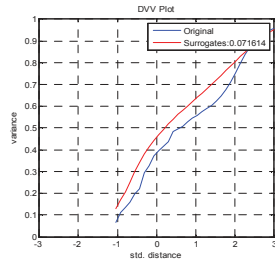
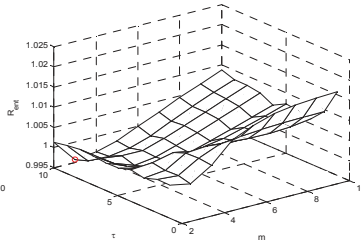
CH1



CH2

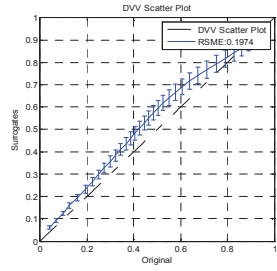
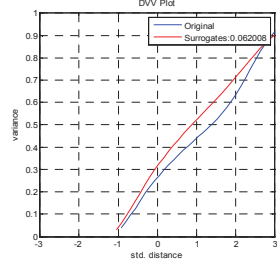
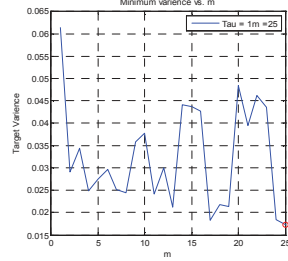


CH3

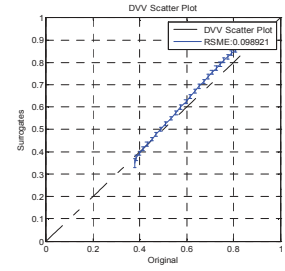
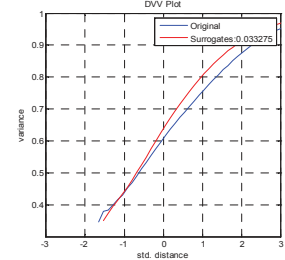
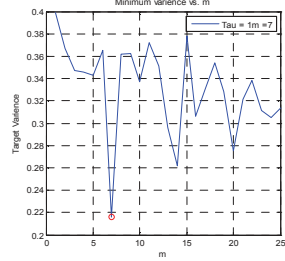


METHOD 2

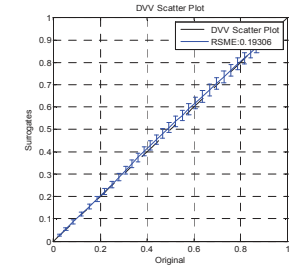
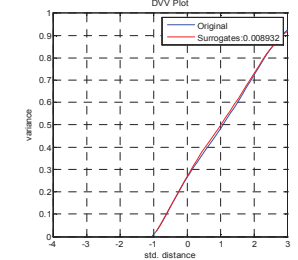
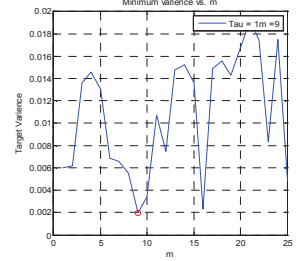
CH1



CH2

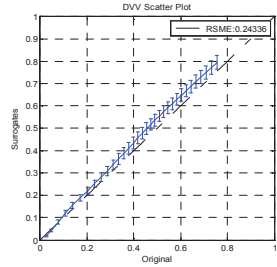
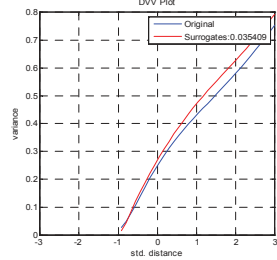


CH3

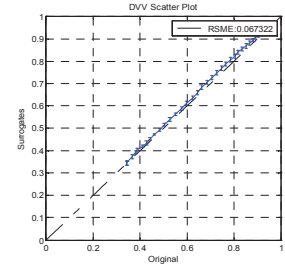
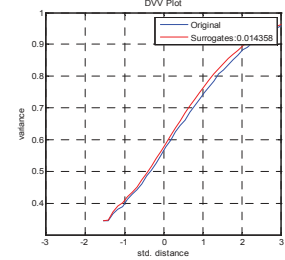


METHOD 3

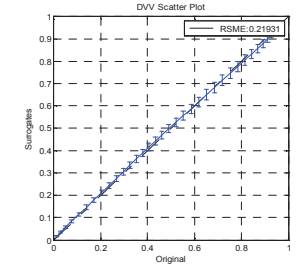
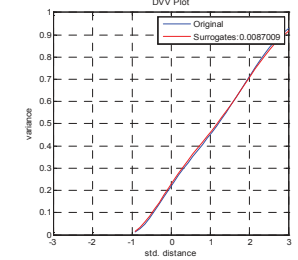
CH1

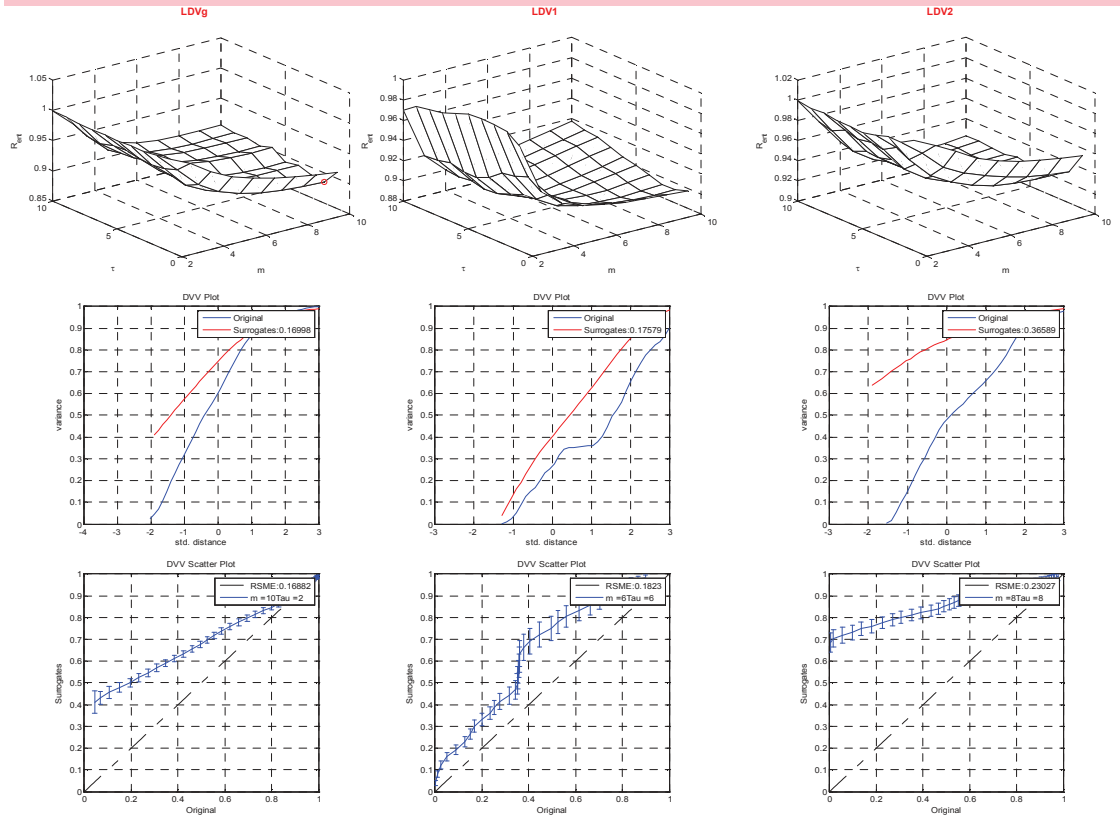
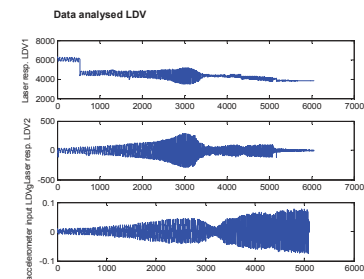
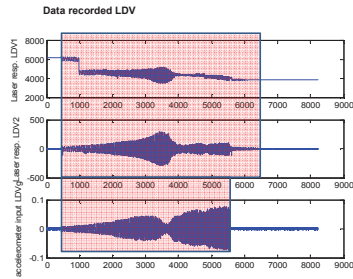
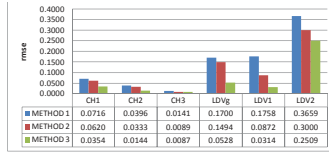
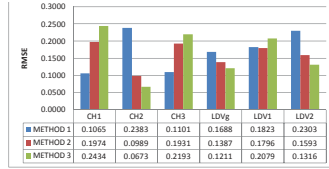


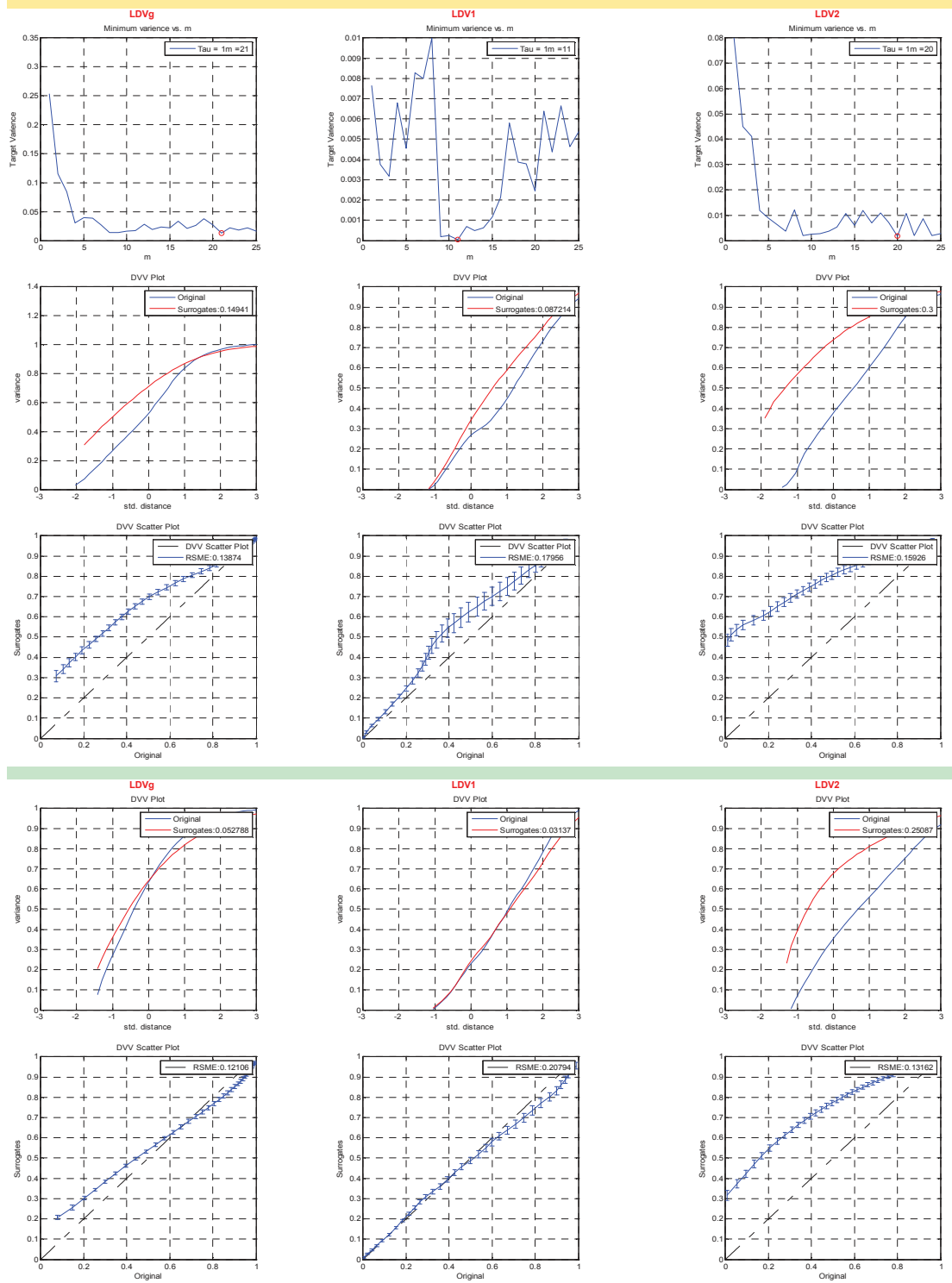
CH2

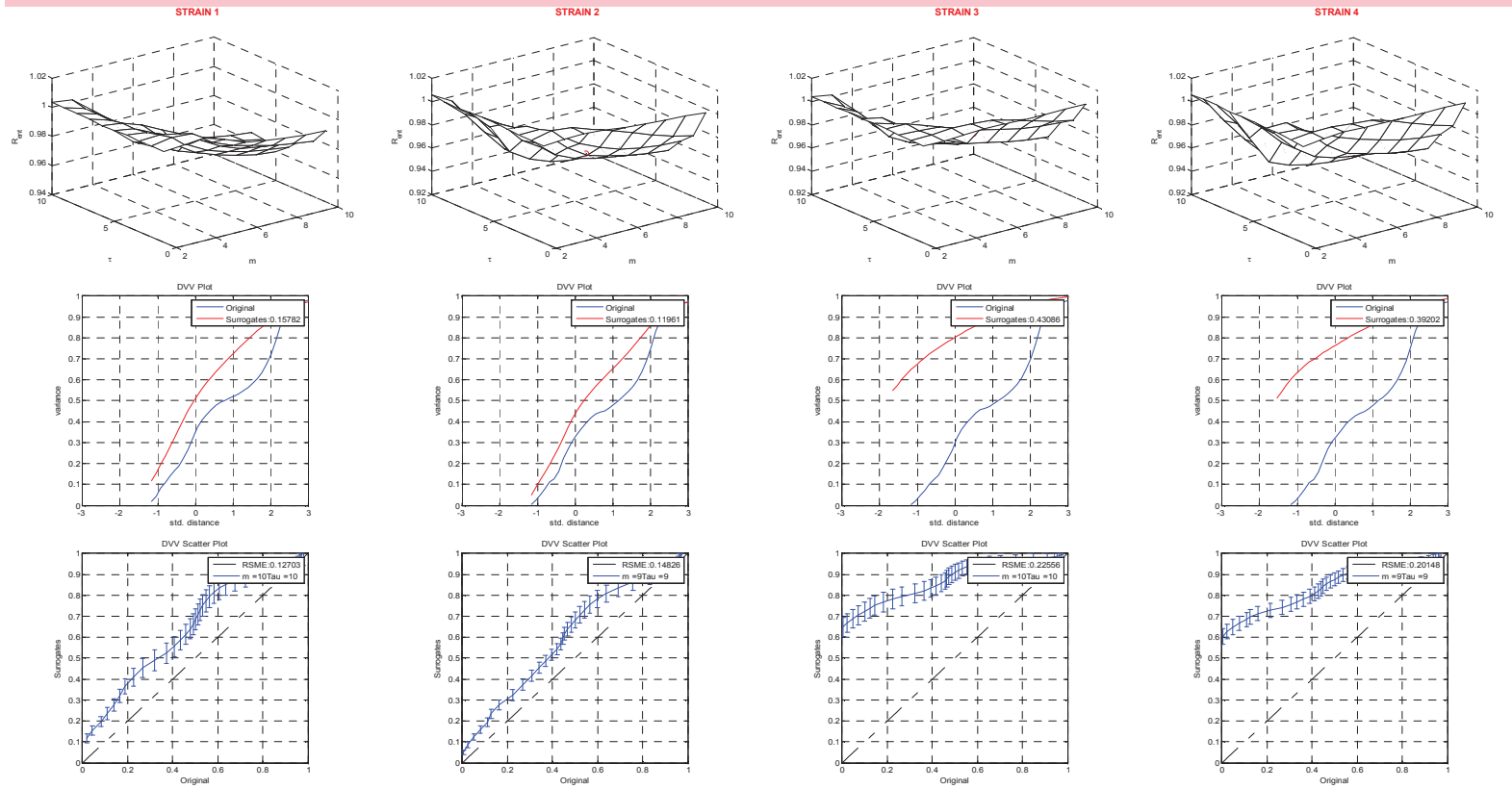
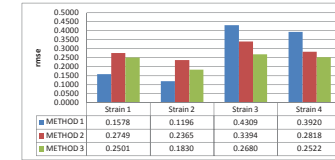
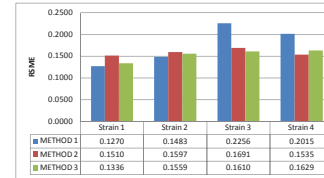
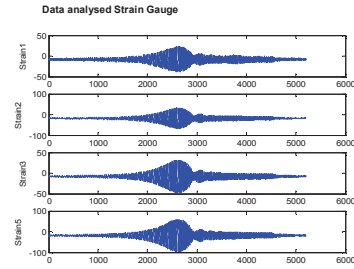
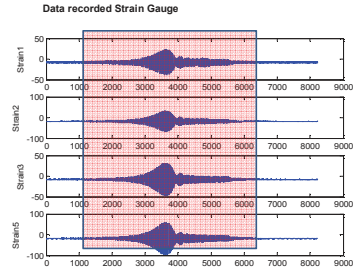


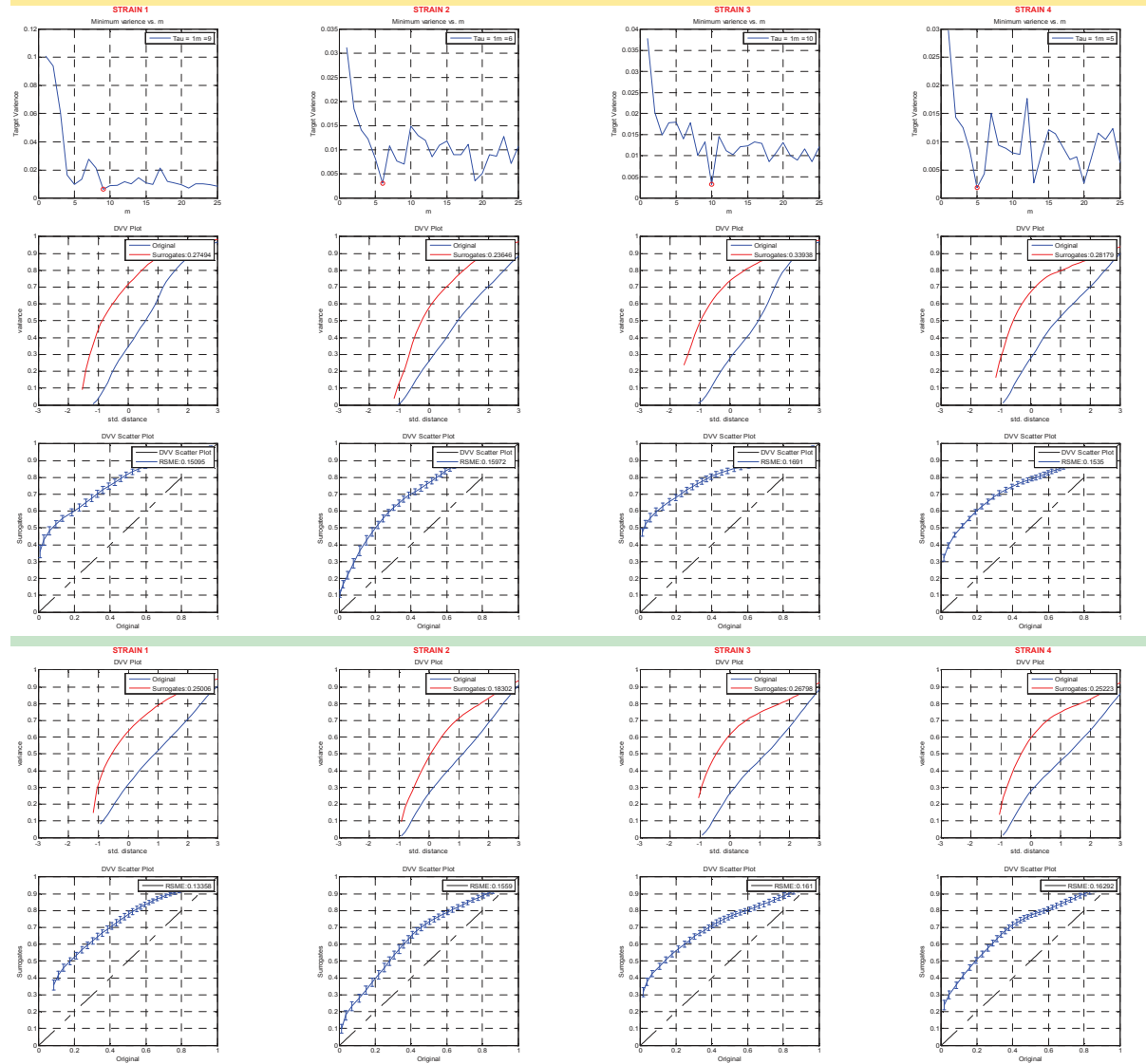
CH3





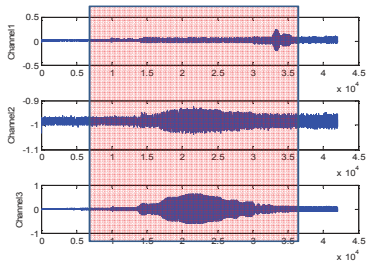




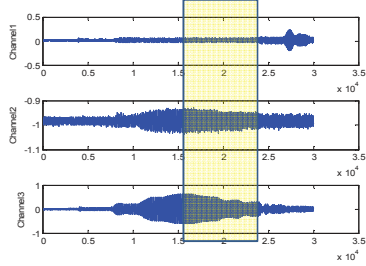


EXPERIMENT		VARIABLES		METHOD 1				METHOD 2				METHOD 3			
				best m	best τ	rsmc	RSME	calc m	τ	rsmc	RSME	set m	set τ	rsmc	RSME
17	Harmonic resonance 2.0 Hz 2.5 Hz 3.0 Hz 3.5 Hz 4.0 Hz 4.2 Hz 4.3 Hz 4.4 Hz 4.5 Hz 4.6 Hz 5.0 Hz 5.5 Hz 6.0 Hz 6.5 Hz 7.0 Hz Focus at bottom strain gauge.	CH1	7	10	0.1119	0.1255	22	1	0.1015	0.1965	3	1	0.0530	0.2385	
		CH2	6	10	0.0359	0.1084	17	1	0.0197	0.0814	3	1	0.0073	0.0491	
		CH3	4	10	0.0191	0.1464	14	1	0.0181	0.1311	3	1	0.0152	0.1867	
		LDVg	10	8	0.2920	0.2477	13	1	0.1010	0.0961	3	1	0.0445	0.1009	
		LDV1	5	9	0.0212	0.1582	11	1	0.0163	0.1671	3	1	0.0111	0.1873	
		LDV2	8	7	0.3506	0.2324	21	1	0.3050	0.1632	3	1	0.2263	0.1206	
		Strain 1	10	7	0.3605	0.2185	15	1	0.3875	0.2077	3	1	0.2459	0.1285	
		Strain 2	9	7	0.3372	0.1942	10	1	0.2350	0.1589	3	1	0.2011	0.1230	
		Strain 3	10	7	0.4138	0.2289	10	1	0.2820	0.1681	3	1	0.2267	0.1304	
		Strain 4	9	7	0.3715	0.2099	9	1	0.2784	0.1719	3	1	0.2293	0.1324	

Data recorded 3D Accelerometer

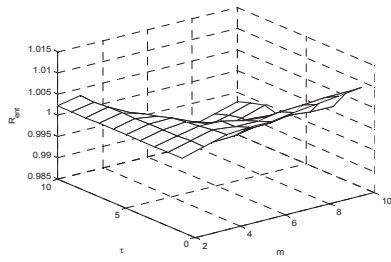


Data analysed 3D Accelerometer

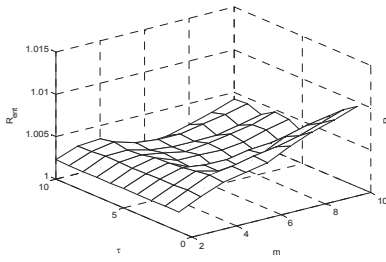


METHOD 1

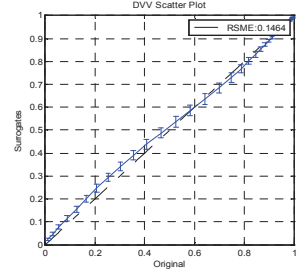
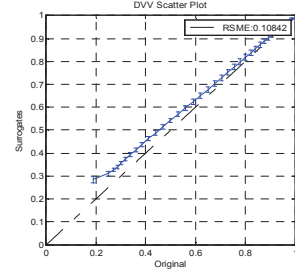
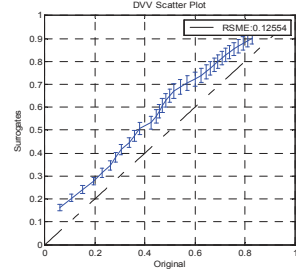
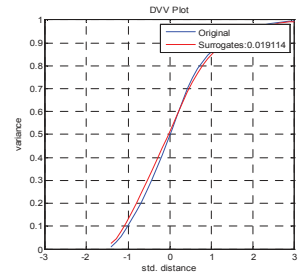
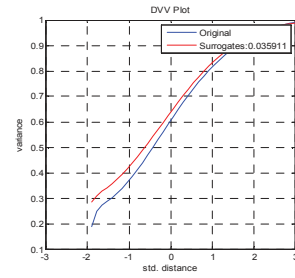
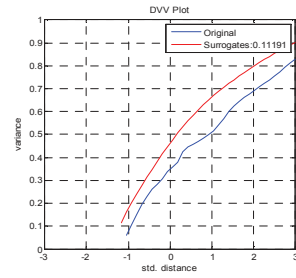
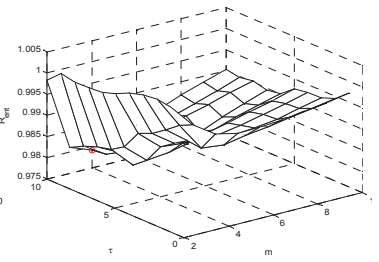
CH1



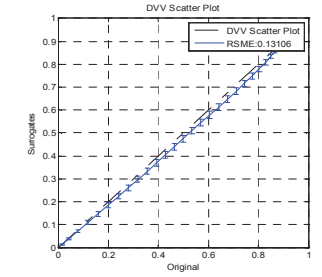
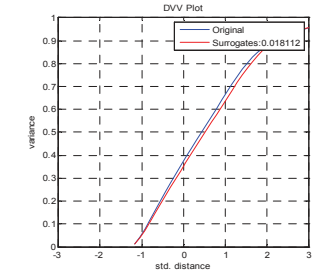
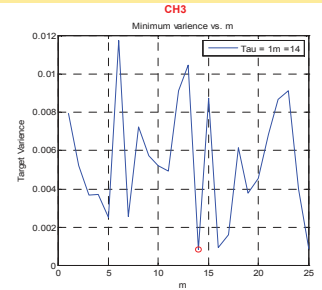
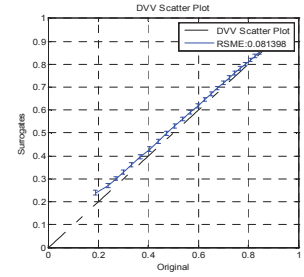
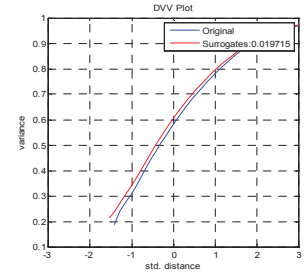
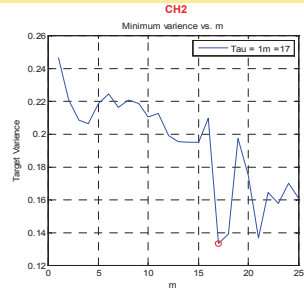
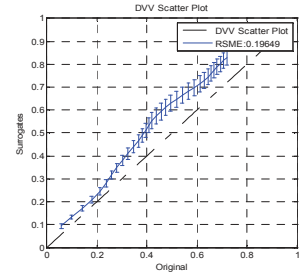
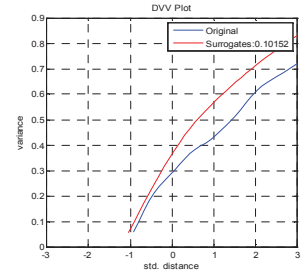
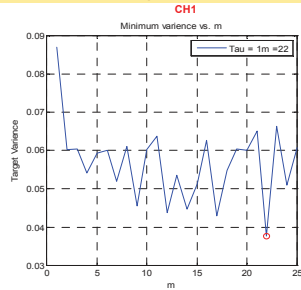
CH2



CH3



METHOD 2



METHOD 3

