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OTA TEST REPORT

Report No. NRL-OTA-2023-0039

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Manufacturer	/
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Product Name	Digital Wind Instrument
Model	NES-1 Wireless Receiver NES-1 Wireless Transmitter Module
Sample Source	Customer delivery
Delivery Date	2023.12.22
Test Date	2023.12.25
Reference Documents	See Appendix A
Testing Content	Passive
Verdict	/
Report Date	2023.12.26

Compiled by

Reviewed by
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(Authorized signatory)

Note:

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4. Test Results

4.1 EUT No. 2023-0040-0001

Frequency (MHz)	Efficiency (%)	Gain (dBi)
5725	27.7708	0.638607
5726	32.3935	-0.87944
5727	27.5458	-1.40313
5728	25.0433	-2.56108
5729	28.453	-0.55076
5730	30.2572	-0.75871
5731	28.6266	1.12803
5732	30.2704	-0.69223
5733	30.2988	-0.62308
5734	32.9037	0.379206
5735	27.005	-1.62834
5736	28.7023	-0.58526
5737	28.4931	-0.54566
5738	32.5214	-0.30172
5739	32.6171	-0.11447
5740	34.9329	0.797341
5741	26.5192	-1.28058
5742	29.542	-0.32389
5743	28.3388	-0.55709
5744	32.9383	-0.66597
5745	31.7308	-0.14392
5746	28.977	-1.74535
5747	27.5738	0.06644
5748	28.7006	-1.54694
5749	32.098	0.021594
5750	26.9305	-1.09638
5751	19.3032	-2.41758
5752	32.7107	-0.44724
5753	29.1263	-0.73178
5754	25.9369	-1.27447
5755	25.1991	-1.8459
5756	31.5098	0.125122
5757	31.5409	-0.24499
5758	25.5417	-2.11394
5759	30.5637	0.994219

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5760	28.2552	-0.90807
5761	24.2277	-0.03511
5762	36.2196	-0.12018
5763	34.5214	-0.07812
5764	27.8359	0.106881
5765	33.4645	-0.51606
5766	29.7496	-0.02683
5767	33.2987	-0.35452
5768	29.7629	-1.10286
5769	27.6079	-1.32745
5770	35.5469	-0.03027
5771	29.0988	-0.82806
5772	29.4952	-0.10497
5773	36.2109	-0.72558
5774	34.1093	0.193886
5775	35.0613	-0.28788
5776	36.7867	0.374085
5777	37.5217	-0.43196
5778	32.3512	0.564927
5779	38.3483	1.07056
5780	33.9639	-0.94637
5781	38.2015	-0.38659
5782	32.0976	1.03594
5783	35.8384	-0.40607
5784	36.8458	1.14025
5785	28.1191	-0.6352
5786	27.3114	-1.76372
5787	39.4474	1.42374
5788	34.0437	0.055799
5789	35.4663	1.60201
5790	37.2946	-0.37035
5791	30.5813	-0.33945
5792	33.3456	-0.51226
5793	30.2835	0.474561
5794	39.5472	0.743754
5795	48.0238	3.4667
5796	43.1508	2.32529
5797	32.5116	0.675591
5798	32.4108	-0.4603
5799	41.7537	2.17792

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5800	34.5122	0.394553
5801	30.9237	1.28821
5802	33.6487	0.347876
5803	37.9914	0.316644
5804	28.7395	-1.53041
5805	45.5184	3.07695
5806	34.905	1.28512
5807	37.6024	-0.18172
5808	33.5813	0.233645
5809	45.834	2.10919
5810	40.4533	1.8661
5811	33.7623	0.181599
5812	37.066	-1.01533
5813	40.8501	0.718875
5814	51.6252	0.984897
5815	42.8555	1.61575
5816	37.3687	1.52329
5817	39.0299	-0.41507
5818	45.0968	0.998996
5819	37.3852	0.770184
5820	35.3711	0.186555
5821	40.6095	1.11867
5822	30.6823	0.431181
5823	41.4361	0.669349
5824	37.4361	0.036885
5825	32.9423	0.428767
5826	37.6137	1.57583
5827	34.0495	-0.84761
5828	40.7348	1.65678
5829	35.7114	0.362536
5830	28.3788	0.486334
5831	35.988	-0.04171
5832	30.3867	-1.3385
5833	31.5108	0.758525
5834	26.8763	-0.42878
5835	30.563	0.576332
5836	27.9387	0.748707
5837	29.6714	-0.58259
5838	23.5413	-2.57759
5839	30.2522	-0.70129

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5840	31.0104	-1.91041
5841	44.3208	0.239073
5842	31.9519	-0.58369
5843	31.8925	0.261778
5844	27.7167	-1.00103
5845	36.0914	2.92487
5846	30.0542	-1.56396
5847	33.1337	-0.87334
5848	26.8489	-0.32721
5849	24.7199	-0.73008
5850	32.4375	0.093658

4.2 EUT No. 2023-0040-0003

Frequency (MHz)	Efficiency (%)	Gain (dBi)
5725	28.9073	-0.21562
5726	34.5105	-0.64518
5727	35.7657	0.399746
5728	34.1977	1.13244
5729	26.2939	-0.51562
5730	28.1591	-2.33922
5731	36.9338	0.678513
5732	26.1033	-0.61064
5733	33.6814	0.510338
5734	29.0625	-0.10815
5735	31.96	0.50432
5736	33.0716	0.71675
5737	35.8705	1.42844
5738	34.1659	1.76984
5739	34.7805	-0.72652
5740	33.774	-0.25117
5741	34.0822	0.256833
5742	26.3351	-0.50552
5743	35.2997	-0.20316
5744	35.225	0.451609
5745	33.2399	0.832475
5746	35.3327	0.327811
5747	30.5236	-1.16846
5748	39.627	0.659589
5749	37.9188	1.29075

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5750	35.8985	0.315084
5751	34.8924	0.936447
5752	33.3658	-0.59869
5753	33.7235	0.803785
5754	26.565	-1.20725
5755	29.4176	0.204645
5756	27.7271	-0.72503
5757	38.7787	0.938447
5758	38.788	1.36259
5759	35.0786	0.297006
5760	28.5373	-0.2173
5761	35.2859	1.2358
5762	34.023	1.4271
5763	37.0957	2.24764
5764	32.223	0.091639
5765	30.8364	0.390015
5766	38.8433	0.628367
5767	33.8581	0.839089
5768	45.8988	1.58692
5769	40.8672	1.74437
5770	38.2329	0.753459
5771	34.7714	-0.12402
5772	42.4584	1.52244
5773	44.9496	0.173537
5774	44.3881	1.77592
5775	39.2983	1.44607
5776	37.2619	0.980083
5777	42.6371	1.10414
5778	39.4676	2.48765
5779	35.3881	0.457105
5780	35.3002	1.12242
5781	44.6997	0.212877
5782	37.581	1.61181
5783	38.8777	0.969969
5784	36.7721	0.597059
5785	40.7584	-0.28674
5786	46.1791	0.511938
5787	34.5437	0.291533
5788	39.796	0.21274
5789	39.2717	1.21639

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5790	41.5753	0.976392
5791	40.1447	1.56925
5792	35.3459	1.27397
5793	42.4244	3.43263
5794	45.5432	0.561222
5795	45.3194	2.92161
5796	37.17	0.901316
5797	39.0102	1.29369
5798	38.5516	0.820407
5799	39.7593	1.36571
5800	34.7957	0.004759
5801	34.1673	-1.03544
5802	46.1682	0.548425
5803	48.3133	2.16591
5804	43.0382	1.12824
5805	45.3642	0.95649
5806	42.6122	1.28085
5807	50.0209	1.7
5808	41.2088	0.460614
5809	42.1479	0.413793
5810	42.3326	-0.14669
5811	43.224	1.41908
5812	41.2752	0.68209
5813	38.6493	0.901648
5814	44.6688	1.86889
5815	49.0983	2.51775
5816	45.9542	0.7613
5817	41.1224	0.249787
5818	37.9578	-0.38462
5819	40.5733	1.94882
5820	39.223	-0.30909
5821	38.4189	0.500597
5822	36.4969	0.597074
5823	40.5819	1.59698
5824	24.9543	-0.11934
5825	39.8941	2.2917
5826	39.6636	1.88287
5827	31.7511	0.07708
5828	32.9743	-0.34761
5829	23.2446	-1.12397

5830	34.7663	0.475347
5831	31.823	-0.34215
5832	40.0985	1.28329
5833	34.2012	-1.22621
5834	40.3433	2.52442
5835	32.4499	1.97166
5836	39.4578	1.00066
5837	30.2464	2.77029
5838	28.0745	-0.40762
5839	29.1577	0.322104
5840	33.5731	0.152166
5841	38.8452	1.4728
5842	34.3902	-0.90442
5843	37.7369	1.9139
5844	32.2579	1.1614
5845	36.7464	0.633544
5846	39.0923	1.28259
5847	41.7771	1.26998
5848	36.0461	1.41823
5849	38.0561	1.18901
5850	39.3427	0.804684

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Appendix A: Reference Documents

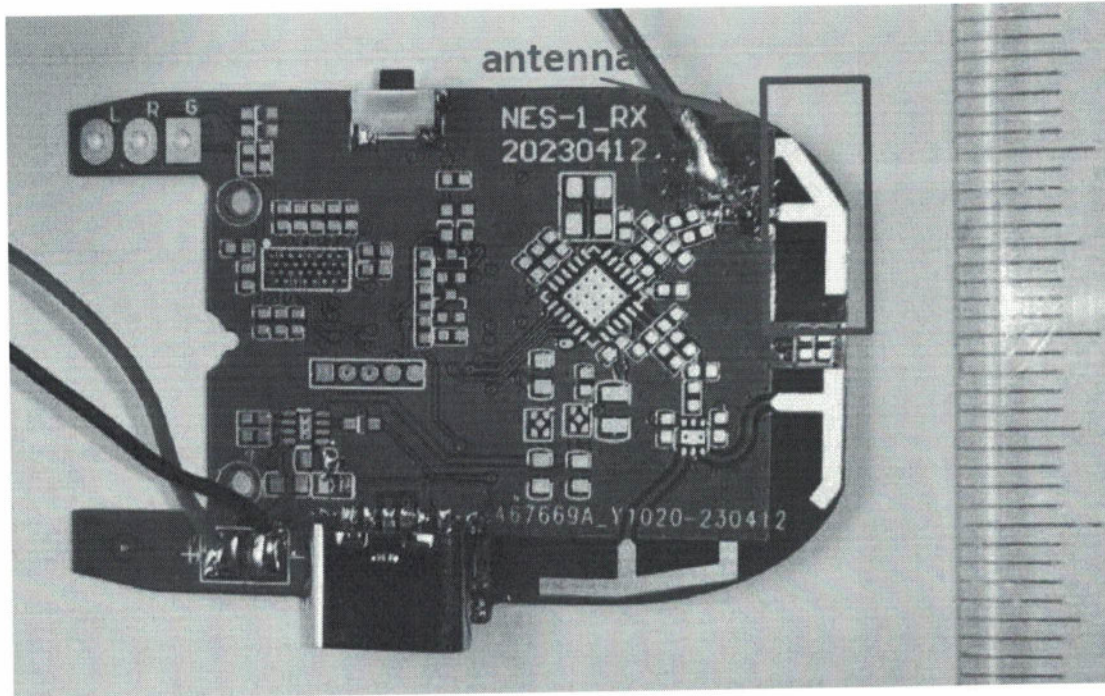
Reference	Title	Version
IEEE Std 149	IEEE Recommended Practice for Antenna Measurements	2021
GB/T 9410	General specification for antennas used in the mobile communications	2008

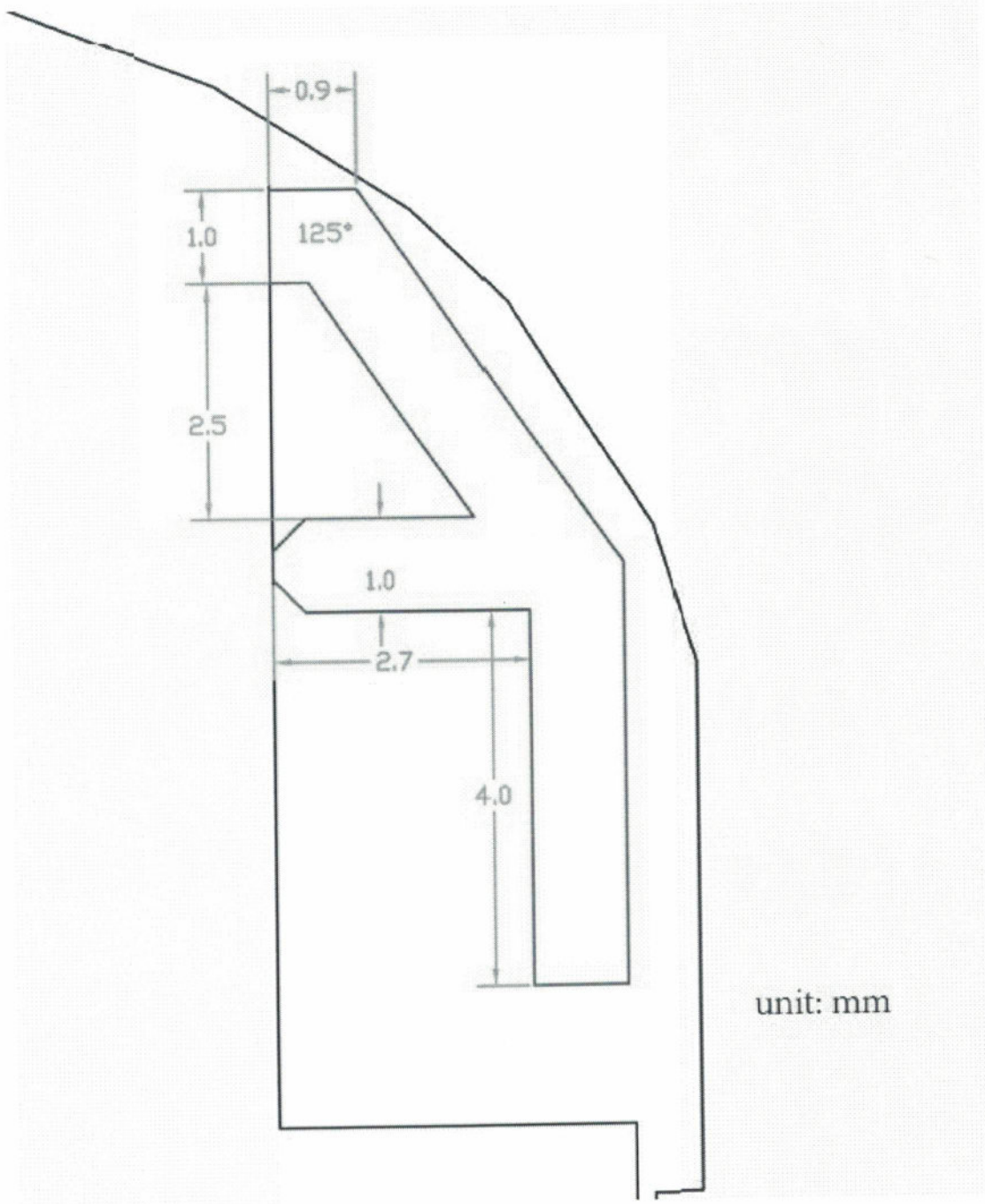
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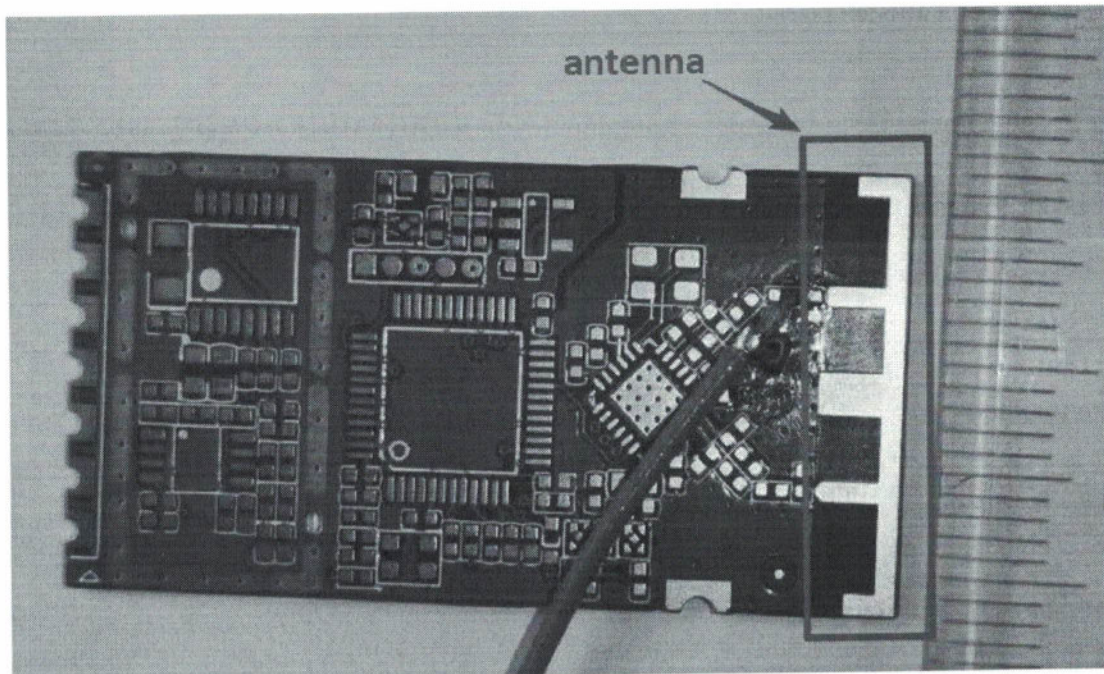
Appendix B: EUT Photographs

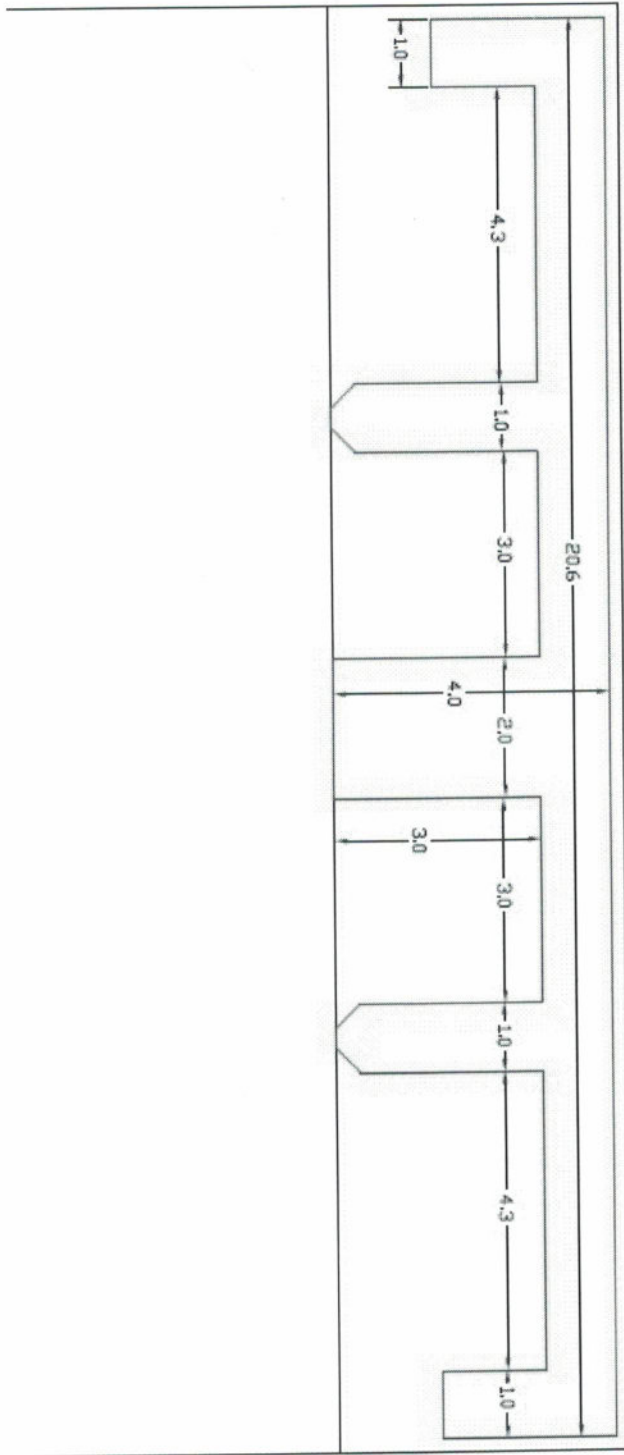
EUT No. 2023-0040-0001





EUT No. 2023-0040-0003

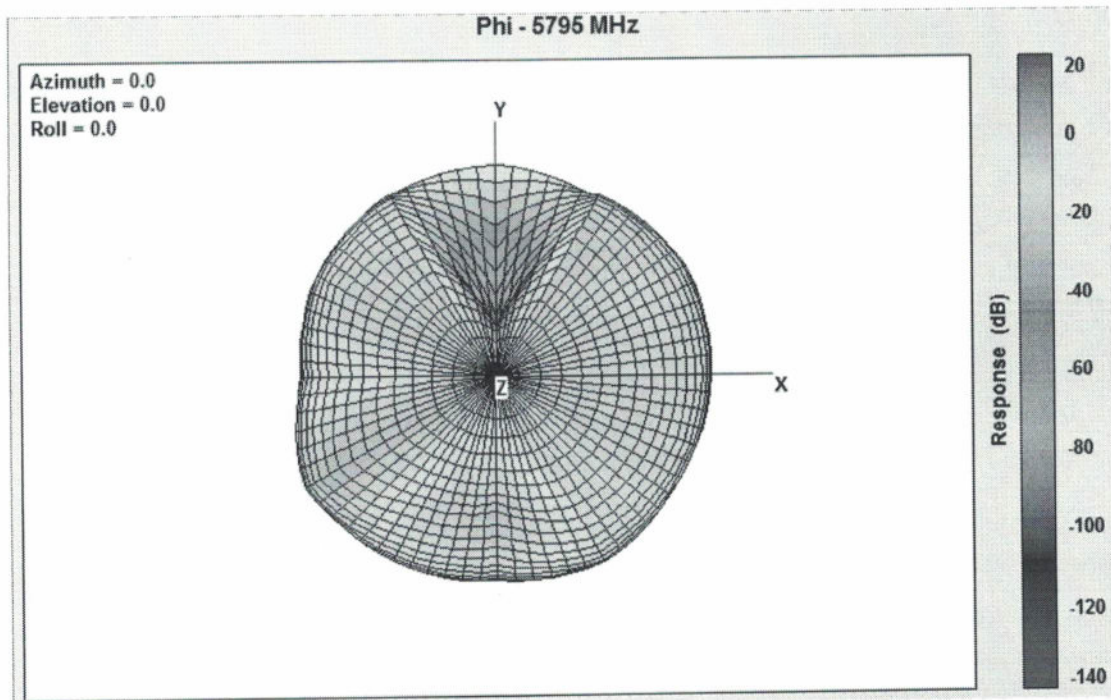
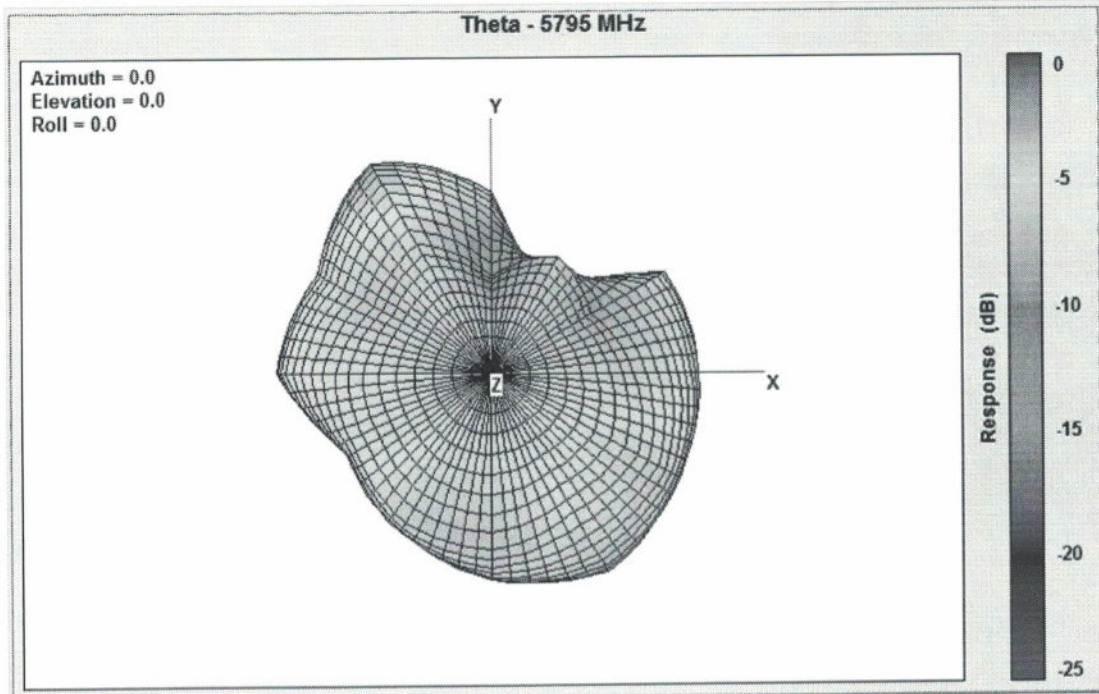


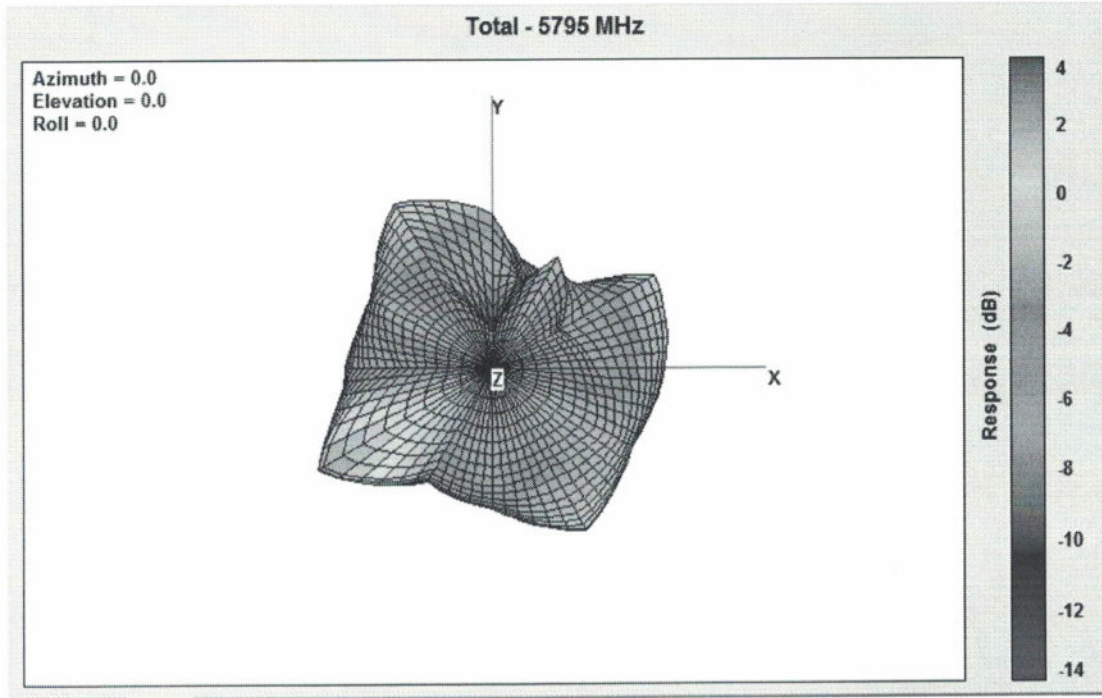


unit: mm

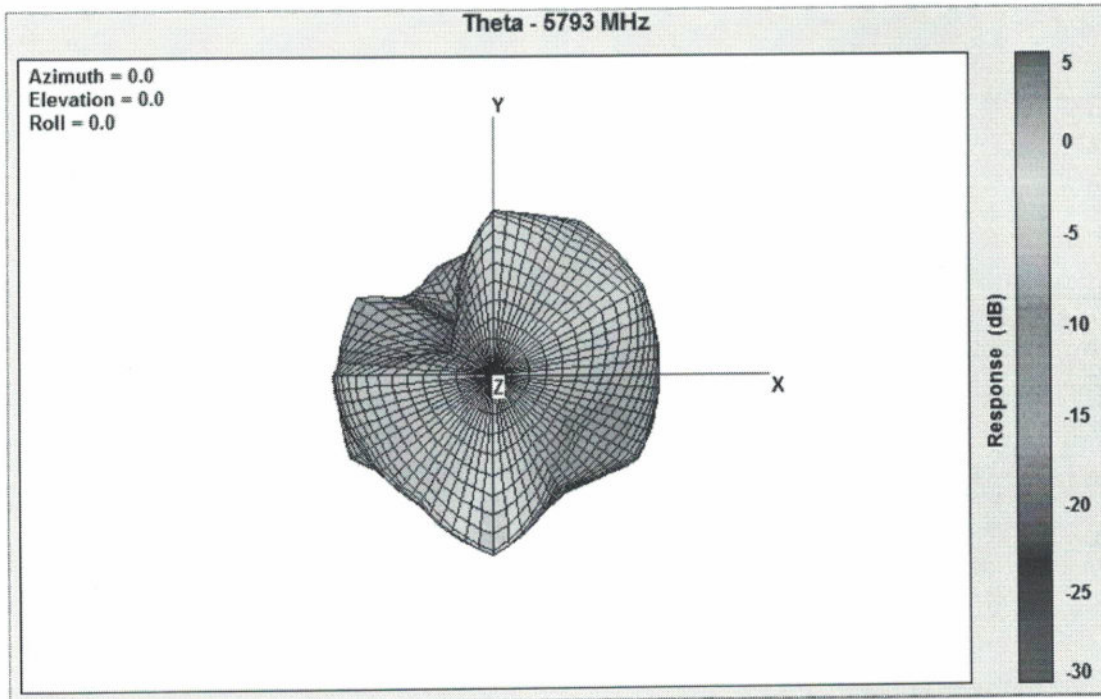
Appendix C: 3D Pattern Plots

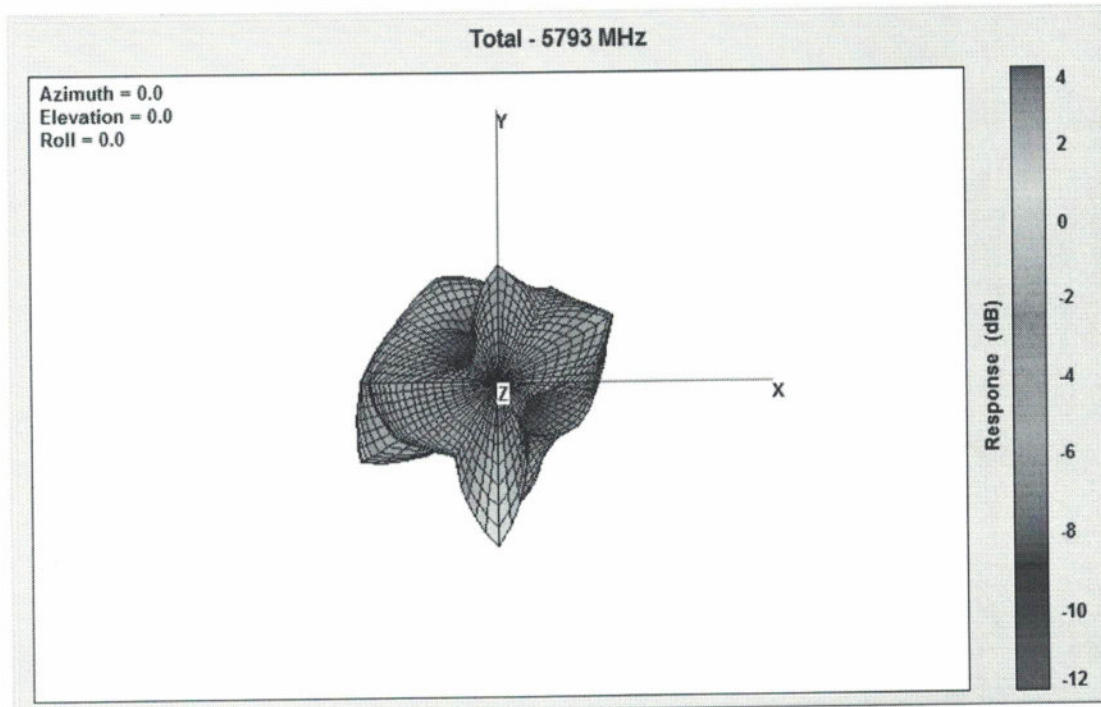
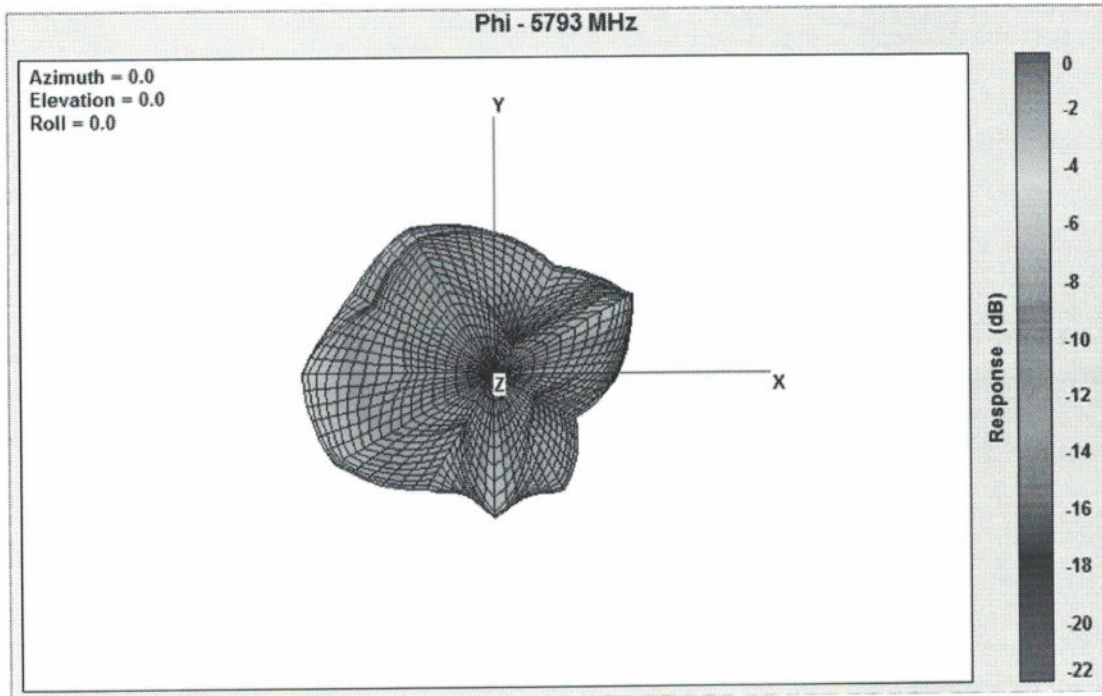
EUT No. 2023-0040-0001





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