

Antenna Specification
 AUT (Antenna Under Test) Report of BHT-1336QWB

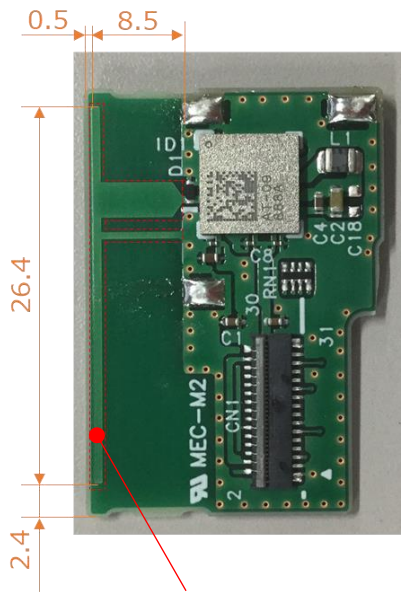
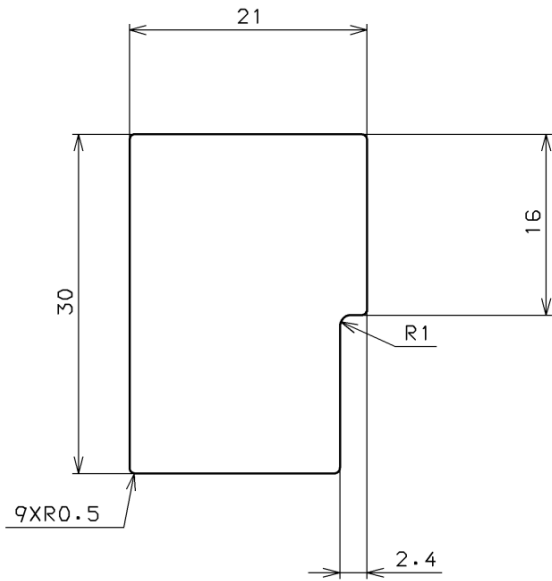
Purpose

Measure the antenna gain of the test item based on the measurement value of a standard dipole antenna.

EUT : DWWB009A (RF module for BHT-1336QWB)

Antenna type : Inverted-F Antenna

Dimension : See the figure below



Antenna pattern

[mm]

Result

RF module	Antenna gain
DWWB009A	Max. 0.327 dBi at. 2.44GHz

DENSO WAVE INCORPORATED
 EDGE PRODUCTS BUSINESS UNIT ENGINEERING DIVISION 2
 ENGINEERING DEPARTMENT 2

Approved

A.Sugiura

17. May. 2024

Test Engineer

A.Ito

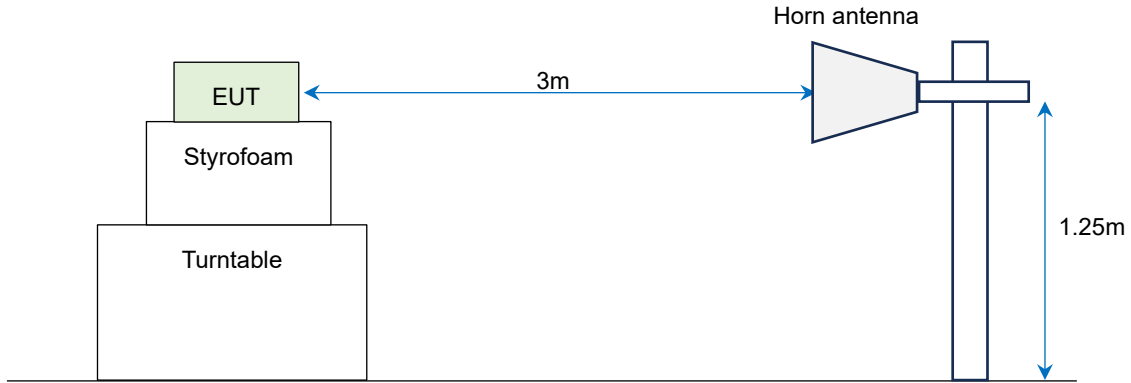
11. Mar. 2024

Location

DENSO WAVE INCORPORATED 1 Yoshiike Kusagi Agui-cho, Chita-gun, Aichi 470-2297
 Radio-frequency anechoic chamber ; TDK Corporation. S/N. DA-13092

Configuration

Due to confidentiality, no photos will be posted.



EUT and equipment

	Model	S/N	Calibration Date	
EUT	DENSO WAVE ; DWWB009A (RF module for BHT-1336QWB)	J6-158	-	
Network Analyzer	ANRITSU : MS46522B	2324101	June 23, 2023	△1
Standard dipole antenna	ANRITSU : MA5612 B4	6200873467	June 23, 2023	△1
Horn antenna	MFD BY DEVICE : ADP0020-1	0020-09066290065	June 23, 2023	△1

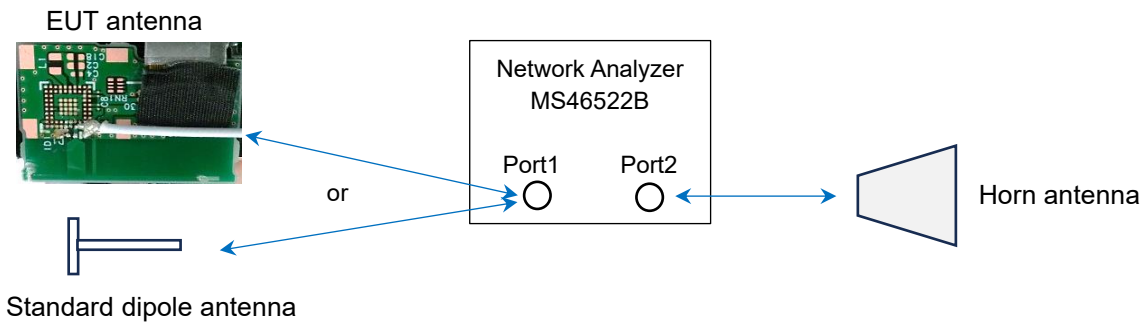
Temperature / Humidity

26 °C / 60 %RH

Procedure

Connect the EUT antenna or Standard dipole antenna to Port 1 of the network analyzer.

Connect the Horn antenna to Port 2 of the network analyzer.



Test Result

EUT	Horn antenna	Turntable Angle [°]	EUT Reading [dB]				Standard dipole antenna Reading [dB]				Antenna conversion value	Antenna gain Result [dBi]			
			2.402GHz	2.426GHz	2.44GHz	2.48GHz	2.402GHz	2.426GHz	2.44GHz	2.48GHz		2.402GHz	2.426GHz	2.44GHz	2.48GHz
Horizon	Horizon	0	-49.953	-48.600	-49.000	-47.712	-39.356	-40.274	-40.644	-39.525	-2.15	-8.447	-6.177	-6.206	-6.036
		45	-50.695	-47.877	-47.347	-47.739	-39.356	-40.274	-40.644	-39.525	-2.15	-9.190	-5.454	-4.554	-6.063
		90	-45.541	-45.638	-45.511	-47.196	-39.356	-40.274	-40.644	-39.525	-2.15	-4.035	-3.214	-2.718	-5.521
		135	-51.733	-53.356	-55.618	-58.732	-39.356	-40.274	-40.644	-39.525	-2.15	-10.228	-10.932	-12.824	-17.056
		180	-48.448	-47.327	-48.167	-47.554	-39.356	-40.274	-40.644	-39.525	-2.15	-6.943	-4.903	-5.374	-5.879
		225	-43.495	-42.310	-42.467	-42.477	-39.356	-40.274	-40.644	-39.525	-2.15	-1.990	0.113	0.327	-0.802
		270	-46.038	-44.219	-44.171	-45.789	-39.356	-40.274	-40.644	-39.525	-2.15	-4.532	-1.796	-1.378	-4.114
		315	-47.764	-45.933	-46.383	-47.168	-39.356	-40.274	-40.644	-39.525	-2.15	-6.259	-3.510	-3.589	-5.493
Horizon	Vertical	0	-59.750	-68.343	-70.333	-64.845	-39.356	-40.274	-40.644	-39.525	-2.15	-18.244	-25.919	-27.539	-23.170
		45	-58.106	-58.910	-58.765	-57.685	-39.356	-40.274	-40.644	-39.525	-2.15	-16.600	-16.486	-15.972	-16.009
		90	-61.955	-58.168	-57.526	-59.276	-39.356	-40.274	-40.644	-39.525	-2.15	-20.449	-15.744	-14.732	-17.600
		135	-52.853	-51.169	-50.318	-50.455	-39.356	-40.274	-40.644	-39.525	-2.15	-11.347	-8.746	-7.524	-8.779
		180	-55.289	-53.721	-53.071	-54.417	-39.356	-40.274	-40.644	-39.525	-2.15	-13.784	-11.298	-10.277	-12.742
		225	-61.826	-60.299	-57.269	-54.066	-39.356	-40.274	-40.644	-39.525	-2.15	-20.321	-17.876	-14.475	-12.391
		270	-63.953	-70.311	-70.056	-67.657	-39.356	-40.274	-40.644	-39.525	-2.15	-22.448	-27.888	-27.263	-25.981
		315	-64.983	-72.218	-64.796	-56.231	-39.356	-40.274	-40.644	-39.525	-2.15	-23.478	-29.794	-22.003	-14.555
Vertical	Horizon	0	-45.997	-46.582	-46.621	-43.386	-39.356	-40.274	-40.644	-39.525	-2.15	-4.492	-4.159	-3.828	-1.710
		45	-47.380	-48.355	-50.879	-48.782	-39.356	-40.274	-40.644	-39.525	-2.15	-5.874	-5.932	-8.086	-7.107
		90	-52.807	-52.185	-53.896	-52.163	-39.356	-40.274	-40.644	-39.525	-2.15	-11.302	-9.762	-11.103	-10.488
		135	-50.489	-47.342	-45.951	-43.655	-39.356	-40.274	-40.644	-39.525	-2.15	-8.984	-4.919	-3.158	-1.980
		180	-50.448	-46.596	-46.305	-44.065	-39.356	-40.274	-40.644	-39.525	-2.15	-8.942	-4.172	-3.511	-2.389
		225	-51.478	-49.910	-50.084	-53.690	-39.356	-40.274	-40.644	-39.525	-2.15	-9.972	-7.486	-7.291	-12.015
		270	-51.750	-52.494	-53.601	-54.140	-39.356	-40.274	-40.644	-39.525	-2.15	-10.244	-10.071	-10.808	-12.465
		315	-45.411	-45.542	-48.549	-45.752	-39.356	-40.274	-40.644	-39.525	-2.15	-3.905	-3.118	-5.755	-4.076
Vertical	Vertical	0	-51.085	-49.820	-51.258	-52.207	-39.356	-40.274	-40.644	-39.525	-2.15	-9.579	-7.397	-8.465	-10.532
		45	-48.780	-47.255	-47.359	-47.426	-39.356	-40.274	-40.644	-39.525	-2.15	-7.275	-4.831	-4.565	-5.750
		90	-46.798	-47.278	-47.774	-45.126	-39.356	-40.274	-40.644	-39.525	-2.15	-5.293	-4.854	-4.980	-3.451
		135	-45.802	-45.381	-44.536	-43.861	-39.356	-40.274	-40.644	-39.525	-2.15	-4.297	-2.957	-1.742	-2.185
		180	-46.355	-44.408	-43.818	-45.158	-39.356	-40.274	-40.644	-39.525	-2.15	-4.849	-1.985	-1.025	-3.483
		225	-60.470	-68.665	-64.159	-59.868	-39.356	-40.274	-40.644	-39.525	-2.15	-18.965	-26.242	-21.365	-18.193
		270	-53.834	-53.715	-54.347	-60.048	-39.356	-40.274	-40.644	-39.525	-2.15	-12.329	-11.291	-11.553	-18.373
		315	-62.124	-56.815	-54.271	-52.578	-39.356	-40.274	-40.644	-39.525	-2.15	-20.619	-14.391	-11.478	-10.903

MAX -1.990 0.113 0.327 -0.802