Antenna Specification

Bluetooth LE 5 Module
Model Name: AP-12SC

VERSION: 0.1

20F-B, No.98, Sec. 1, Xintai 5th Rd., Xizhi Dist, New Taipei City 22102, Taiwan
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Details of EUT

Product Name	AP-12
Device Manufacturer	Behavior Tech Computer Corp.
Device Model Name	AP-12SC
Device Description	AP-12SC is a Bluetooth low energy (BLE) module. It uses REALTEK BLE controller RTL8762C, which is an ultra-low-power, highly flexible multi-protocol 2.4 GHz radio chipset. AP-12SC is designed for high-performance wearable, medical, and industrial applications. The module integrates PCB antenna, crystal, and controller relative circuit, customer can easily apply it in product.
Hardware Version	Ver : 0.2A
Software Version	Ver : 1.0
Frequency Range	2400MHz ~ 2500MHz Step size: 10MHz
Antenna Type	Embedded Antenna
Antenna Model	ANPCB-2301
Antenna Brand	BTC

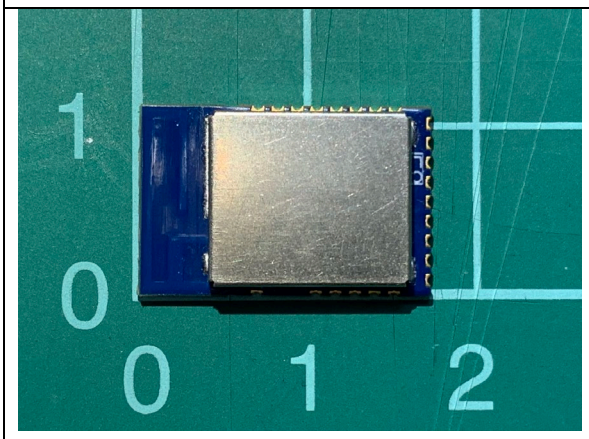
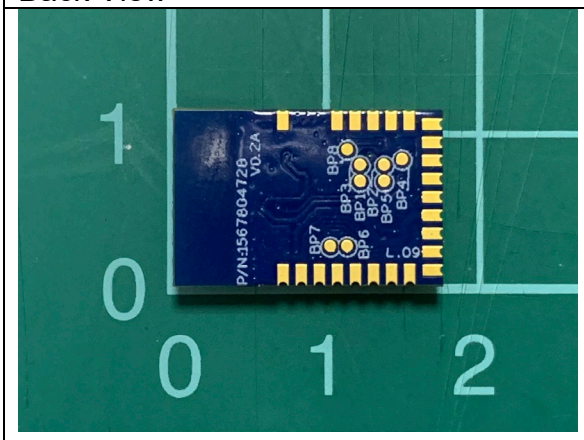
Duration of Tests

Commissioned Test Unit	SGS
Sample Receive Date	2022/11/24
Test Starting Date	2022/11/24
Test Ending Date	2022/11/24
Report Issued Date	2022/11/25

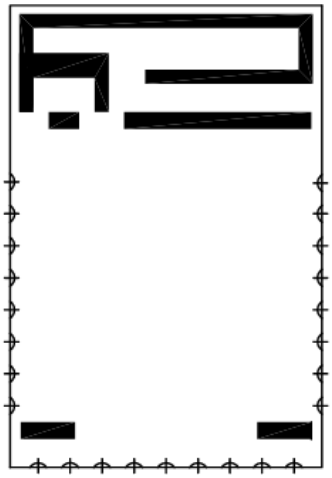
Testing Condition

Temperature	25±3˚C
Humidity	<80%

Photographs of EUT

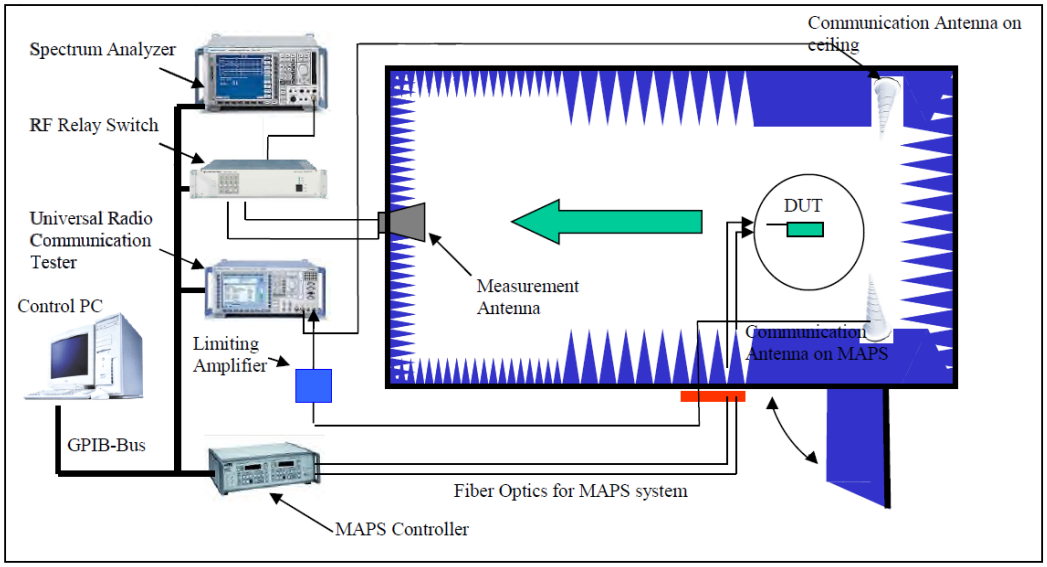
Front View

Back View


Antenna Pattern



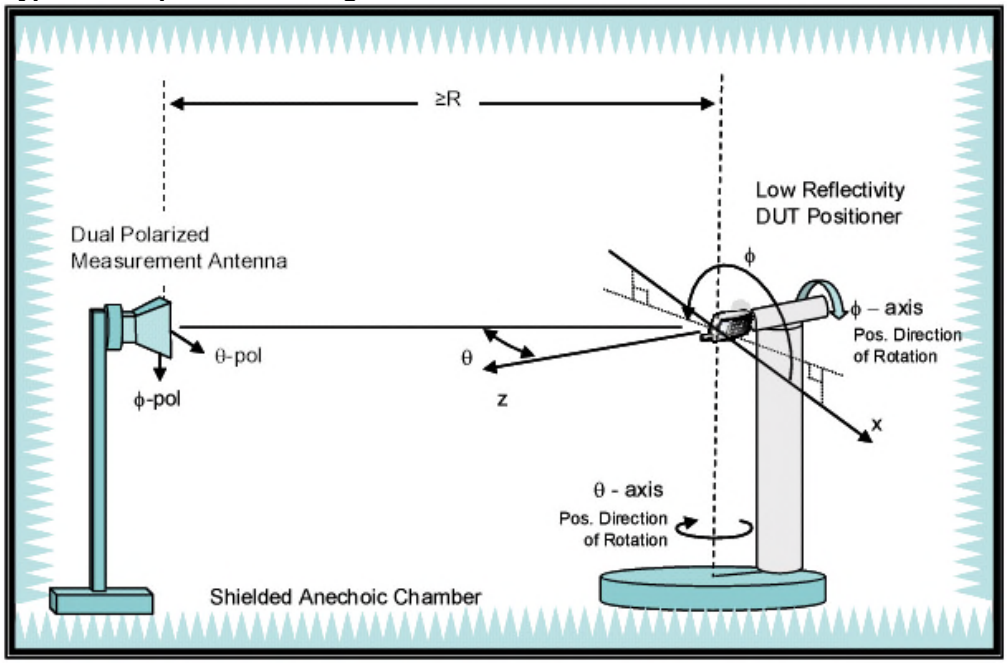
Measurement Facility:

- Measurement Chamber: ETS-Lindgren 3D fully anechoic chamber and its measuring system (AMS-8500)
- Base Station Simulator: Agilent E5515C (or R&S CMU200)
- ETS-Lindgren EMCO-2090 Auxiliary Ports RF Relay Switches
- Spectrum Analyzer: Agilent N9010A
- Network Analyzer: Agilent E5071C



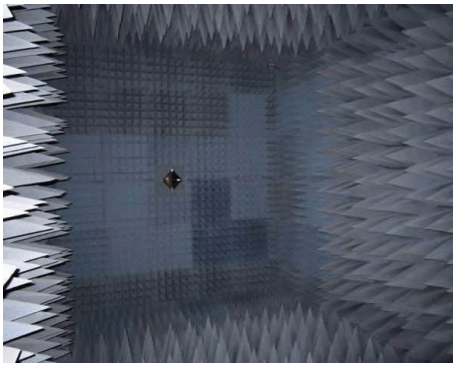
Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest*^{TM} *EMQ-100* data acquisition and analysis software.
The geometry of the setup is specified below for reference.

Typical Setup for ETS-Lindgren AMS-8500



Instruments View

Inside View

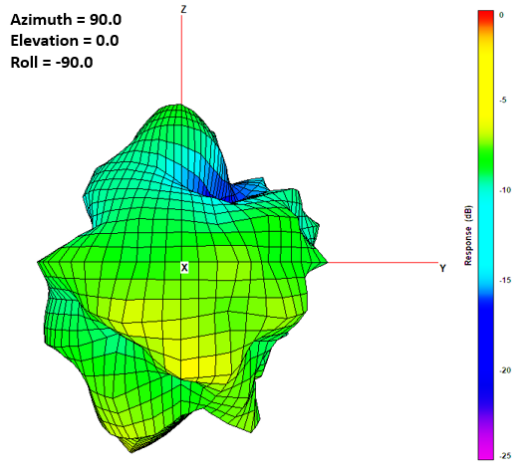
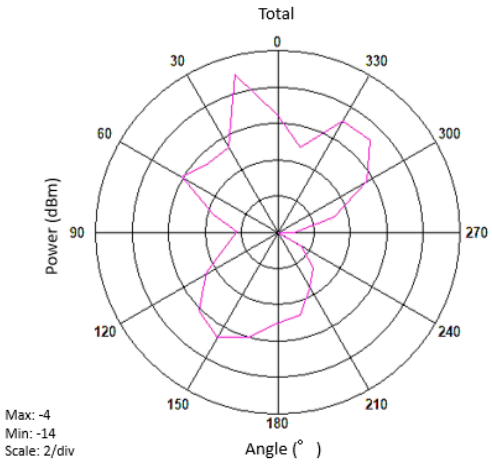


Antenna Gain and Efficiency

Test Result											
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	**-9.65**	**-9.30**	**-9.06**	**-9.02**	**-9.09**	**-9.36**	**-9.66**	**-9.95**	**-10.15**	**-10.25**	**-10.27**
Peak EIRP (dBm)	-4.04	-3.73	-3.55	-3.39	-3.37	-3.65	-3.94	-4.14	-4.32	-4.39	-4.33
Directivity (dBi)	5.61	5.57	5.51	5.63	5.72	5.71	5.72	5.81	5.83	5.86	5.95
Efficiency (dB)	-9.65	-9.30	-9.06	-9.02	-9.09	-9.36	-9.66	-9.95	-10.15	-10.25	-10.27
Efficiency (%)	**10.84**	**11.75**	**12.42**	**12.53**	**12.34**	**11.60**	**10.81**	**10.12**	**9.67**	**9.44**	**9.39**
Gain (dBi)	-4.04	-3.73	-3.55	-3.39	-3.37	-3.65	-3.94	-4.14	-4.32	-4.39	-4.33
NHPRP ±Pi/4 (dBm)	-11.11	-10.76	-10.51	-10.46	-10.53	-10.79	-11.09	-11.39	-11.59	-11.70	-11.73
NHPRP ±Pi/6 (dBm)	-12.53	-12.17	-11.90	-11.84	-11.89	-12.14	-12.44	-12.74	-12.94	-13.05	-13.09
NHPRP ±Pi/8 (dBm)	-13.62	-13.25	-12.97	-12.91	-12.96	-13.21	-13.51	-13.82	-14.02	-14.14	-14.18
Upper Hem. PRP (dBm)	-14.80	-14.42	-14.12	-14.05	-14.06	-14.25	-14.49	-14.72	-14.87	-14.92	-14.92
Lower Hem. PRP (dBm)	-11.23	-10.90	-10.68	-10.66	-10.75	-11.06	-11.39	-11.70	-11.93	-12.06	-12.10

Antenna 3D Plot Matrix

All plots in this section show the total EIRP (EIRPθ + EIRPφ) with the +x-axis pointing out of the page, +y-axis pointing right, and +z-axis pointing up.

Free Space EIRP (2450 MHz) – 3D	Free Space EIRP (2450 MHz) – XY cut
	
Free Space EIRP (2450 MHz) – XZ cut	Free Space EIRP (2450 MHz) – YZ cut