4.1.7 Band Edge (Restricted-band band-edge)

RESULT: **PASS**

Test standard	:	FCC Part 15.247(d), 15.205, 15.209
Requirement	:	ANSI C63.10-2013, Clause 11.13 KDB 558074 D01 v05r02, Clause 8.7
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/Middle/High
Operation Mode	:	A.1.a
Ambient temperature	:	21°C
Relative humidity	:	50%

Notes:

1. Test plots please refer to the annex document "SHE24030088-01CE DATA WIFI 2.4GHz-TX EXHIBIT A".

2. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

4.2 Mains Emissions

4.2.1 Conducted Emission on AC Mains

RESULT: **PASS**

Test standard	:	FCC Part 15.207(a)
Requirement	:	ANSI C63.10-2013, Clause 6.2
Kind of test site	:	Shielded room

Test setup

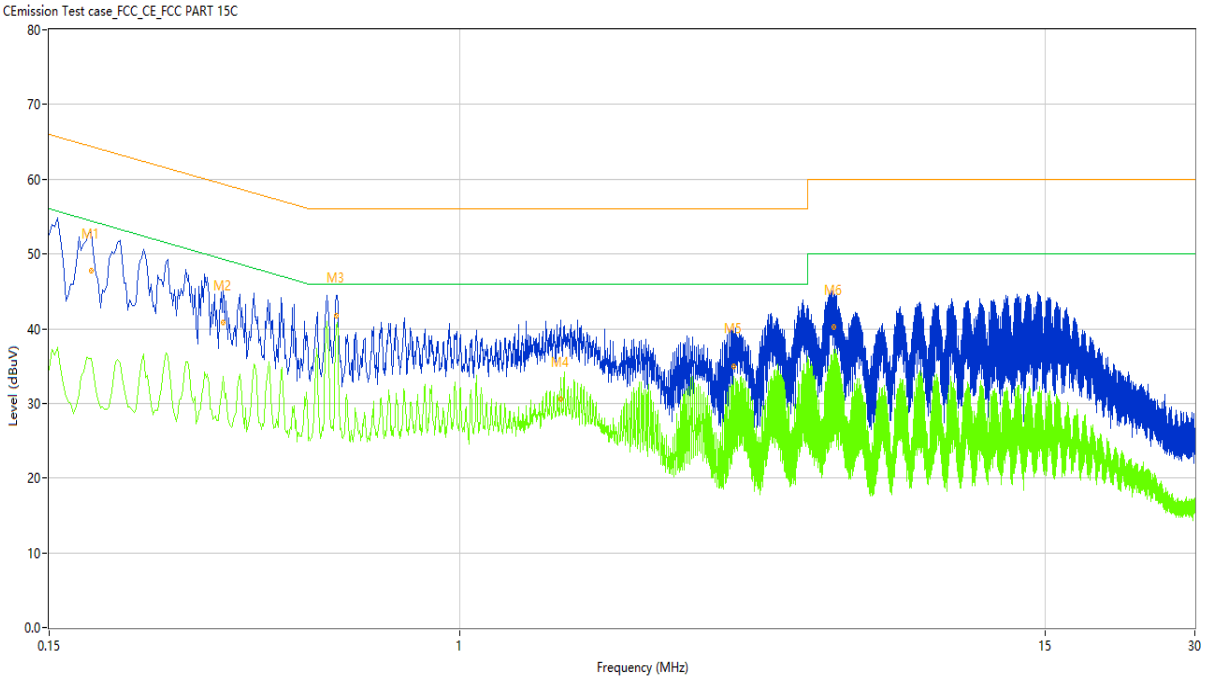
Input Voltage	:	which received AC 120V, 60Hz Power
Operation Mode	:	A.1.a
Earthing	:	Disconnected to GND
Ambient temperature	:	22.2°C
Relative humidity	:	50%

For details refer to following test plot.

Note：All test modes had been pre-tested, but only the 802.11b at low channel is the worst case and recorded in the report.

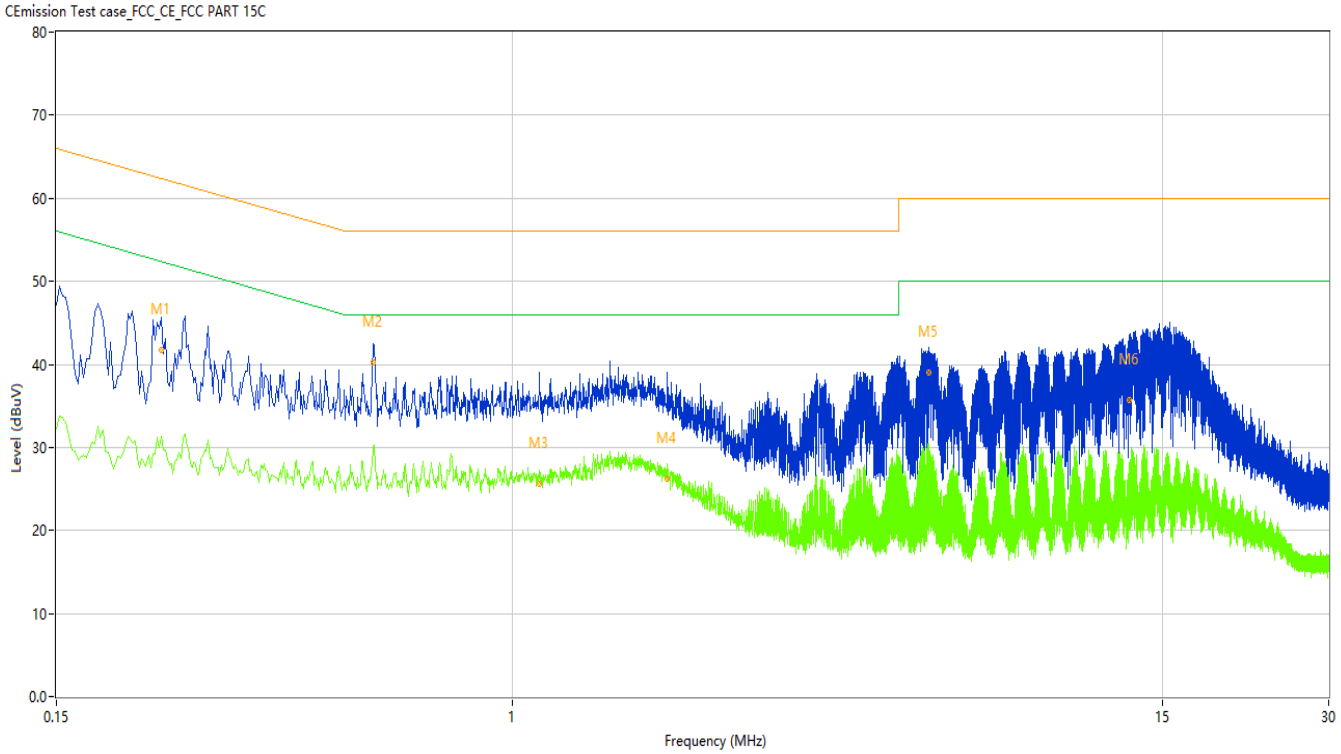
USB Input:

Figure 37: Conducted Emission on AC Mains, L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.182	50.23	9.93	64.39	14.16	Peak	L	Pass
1*	0.182	47.79	9.93	64.39	16.60	QP	L	Pass
1**	0.182	35.95	9.93	54.39	18.44	AV	L	Pass
2	0.336	44.41	9.97	59.30	14.89	Peak	L	Pass
2*	0.336	40.85	9.97	59.30	18.45	QP	L	Pass
2**	0.336	33.59	9.97	49.30	15.71	AV	L	Pass
3	0.566	43.79	9.96	56.00	12.21	Peak	L	Pass
3*	0.566	41.74	9.96	56.00	14.26	QP	L	Pass
3**	0.566	40.22	9.96	46.00	5.78	AV	L	Pass
4	1.598	36.81	9.85	56.00	19.19	Peak	L	Pass
4*	1.598	30.59	9.85	56.00	25.41	QP	L	Pass
4**	1.598	33.51	9.85	46.00	12.49	AV	L	Pass
5	3.558	39.73	9.82	56.00	16.27	Peak	L	Pass
5*	3.558	34.94	9.82	56.00	21.06	QP	L	Pass
5**	3.558	33.62	9.82	46.00	12.38	AV	L	Pass
6	5.646	44.17	9.81	60.00	15.83	Peak	L	Pass
6*	5.646	40.17	9.81	60.00	19.83	QP	L	Pass
6**	5.646	37.21	9.81	50.00	12.79	AV	L	Pass

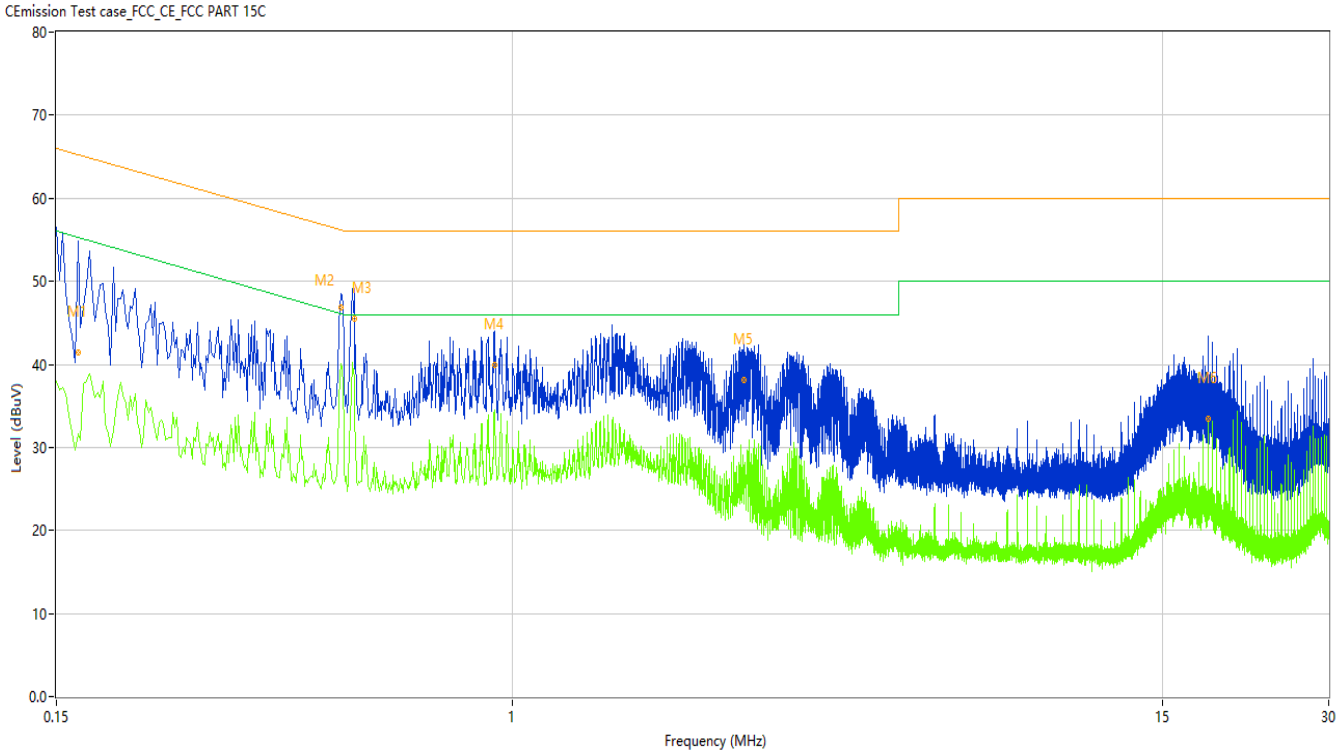
Figure 38: Conducted Emission on AC Mains, N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.232	44.78	10.05	62.38	17.60	Peak	N	Pass
1*	0.232	41.77	10.05	62.38	20.61	QP	N	Pass
1**	0.232	31.29	10.05	52.38	21.09	AV	N	Pass
2	0.562	42.86	10.06	56.00	13.14	Peak	N	Pass
2*	0.562	40.15	10.06	56.00	15.85	QP	N	Pass
2**	0.562	30.09	10.06	46.00	15.91	AV	N	Pass
3	1.122	34.24	9.94	56.00	21.76	Peak	N	Pass
3*	1.122	25.59	9.94	56.00	30.41	QP	N	Pass
3**	1.122	27.32	9.94	46.00	18.68	AV	N	Pass
4	1.912	34.24	9.94	56.00	21.76	Peak	N	Pass
4*	1.912	26.22	9.94	56.00	29.78	QP	N	Pass
4**	1.912	27.97	9.94	46.00	18.03	AV	N	Pass
5	5.668	42.70	9.76	60.00	17.30	Peak	N	Pass
5*	5.668	39.03	9.76	60.00	20.97	QP	N	Pass
5**	5.668	30.37	9.76	50.00	19.63	AV	N	Pass
6	13.092	43.10	9.67	60.00	16.90	Peak	N	Pass
6*	13.092	35.76	9.67	60.00	24.24	QP	N	Pass
6**	13.092	25.91	9.67	50.00	24.09	AV	N	Pass

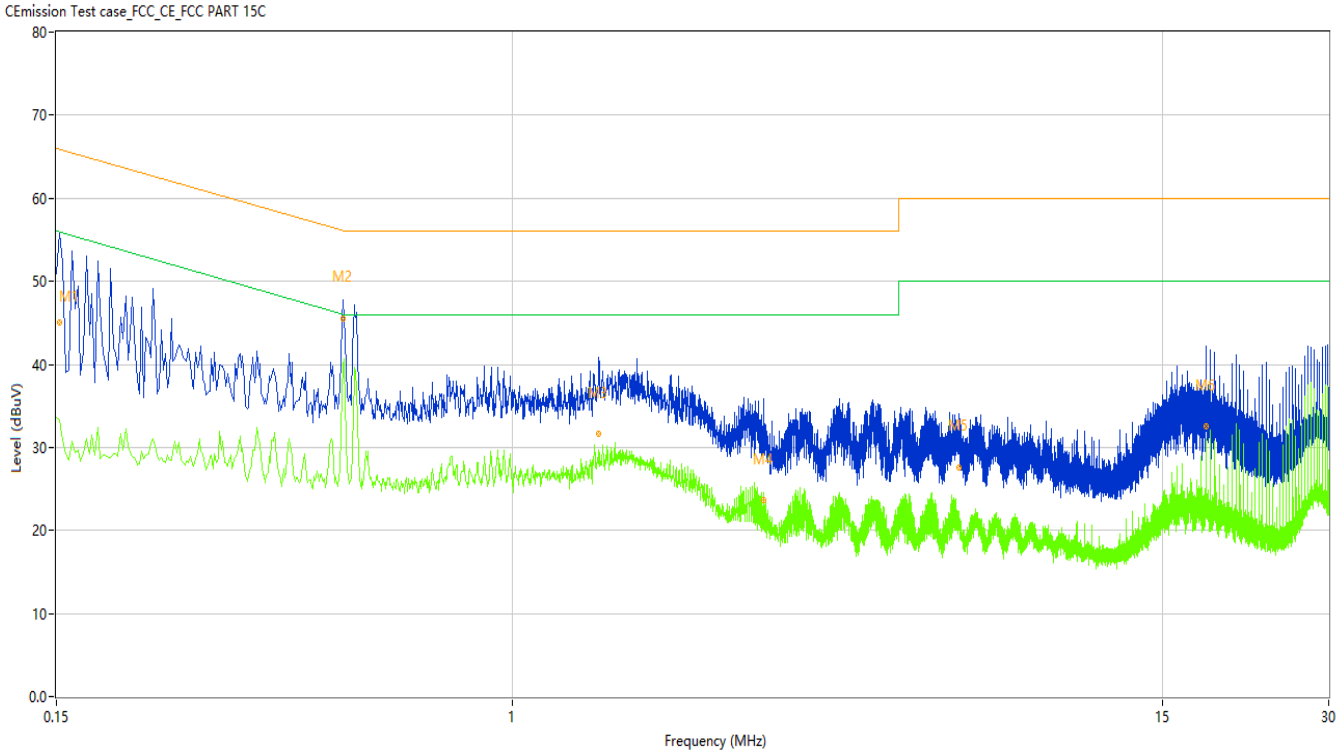
POE Input:

Figure 39: Conducted Emission on AC Mains, L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.164	56.08	9.94	65.26	9.18	Peak	L	Pass
1*	0.164	41.47	9.94	65.26	23.79	QP	L	Pass
1**	0.164	31.66	9.94	55.26	23.60	AV	L	Pass
2	0.490	48.96	9.96	56.17	7.21	Peak	L	Pass
2*	0.490	46.81	9.96	56.17	9.36	QP	L	Pass
2**	0.490	40.04	9.96	46.17	6.13	AV	L	Pass
3	0.518	48.54	9.96	56.00	7.46	Peak	L	Pass
3*	0.518	45.48	9.96	56.00	10.52	QP	L	Pass
3**	0.518	38.69	9.96	46.00	7.31	AV	L	Pass
4	0.932	43.25	9.94	56.00	12.75	Peak	L	Pass
4*	0.932	39.91	9.94	56.00	16.09	QP	L	Pass
4**	0.932	34.51	9.94	46.00	11.49	AV	L	Pass
5	2.630	41.39	9.84	56.00	14.61	Peak	L	Pass
5*	2.630	38.10	9.84	56.00	17.90	QP	L	Pass
5**	2.630	27.80	9.84	46.00	18.20	AV	L	Pass
6	18.136	40.90	9.42	60.00	19.10	Peak	L	Pass
6*	18.136	33.46	9.42	60.00	26.54	QP	L	Pass
6**	18.136	33.14	9.42	50.00	16.86	AV	L	Pass

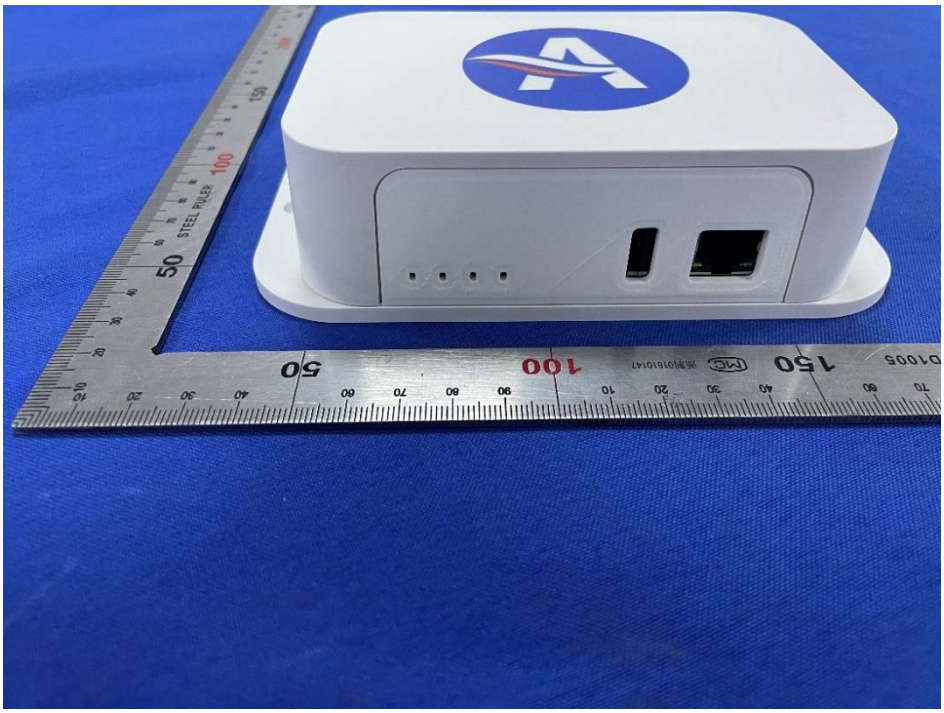
Figure 40: Conducted Emission on AC Mains, N Phase



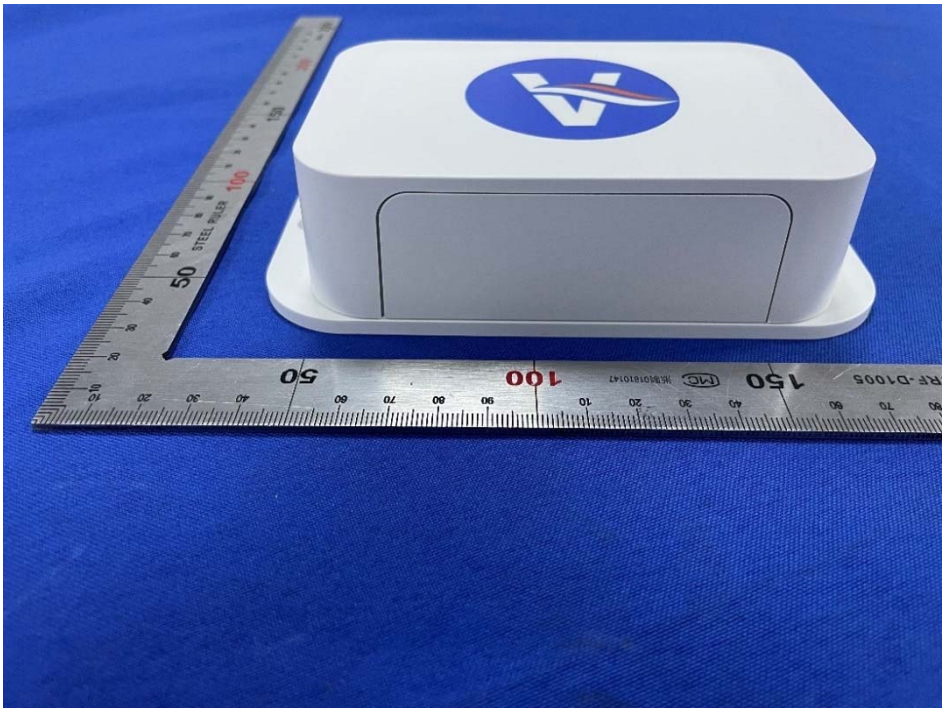
No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	58.99	10.02	65.89	6.90	Peak	N	Pass
1*	0.152	45.08	10.02	65.89	20.81	QP	N	Pass
1**	0.152	33.23	10.02	55.89	22.66	AV	N	Pass
2	0.494	48.06	10.07	56.10	8.04	Peak	N	Pass
2*	0.494	45.45	10.07	56.10	10.65	QP	N	Pass
2**	0.494	39.82	10.07	46.10	6.28	AV	N	Pass
3	1.436	36.69	9.94	56.00	19.31	Peak	N	Pass
3*	1.436	31.63	9.94	56.00	24.37	QP	N	Pass
3**	1.436	29.62	9.94	46.00	16.38	AV	N	Pass
4	2.850	31.23	9.91	56.00	24.77	Peak	N	Pass
4*	2.850	23.62	9.91	56.00	32.38	QP	N	Pass
4**	2.850	24.56	9.91	46.00	21.44	AV	N	Pass
5	6.430	33.52	9.81	60.00	26.48	Peak	N	Pass
5*	6.430	27.62	9.81	60.00	32.38	QP	N	Pass
5**	6.430	21.06	9.81	50.00	28.94	AV	N	Pass
6	17.994	36.79	9.51	60.00	23.21	Peak	N	Pass
6*	17.994	32.57	9.51	60.00	27.43	QP	N	Pass
6**	17.994	29.90	9.51	50.00	20.10	AV	N	Pass

5 Appendixes

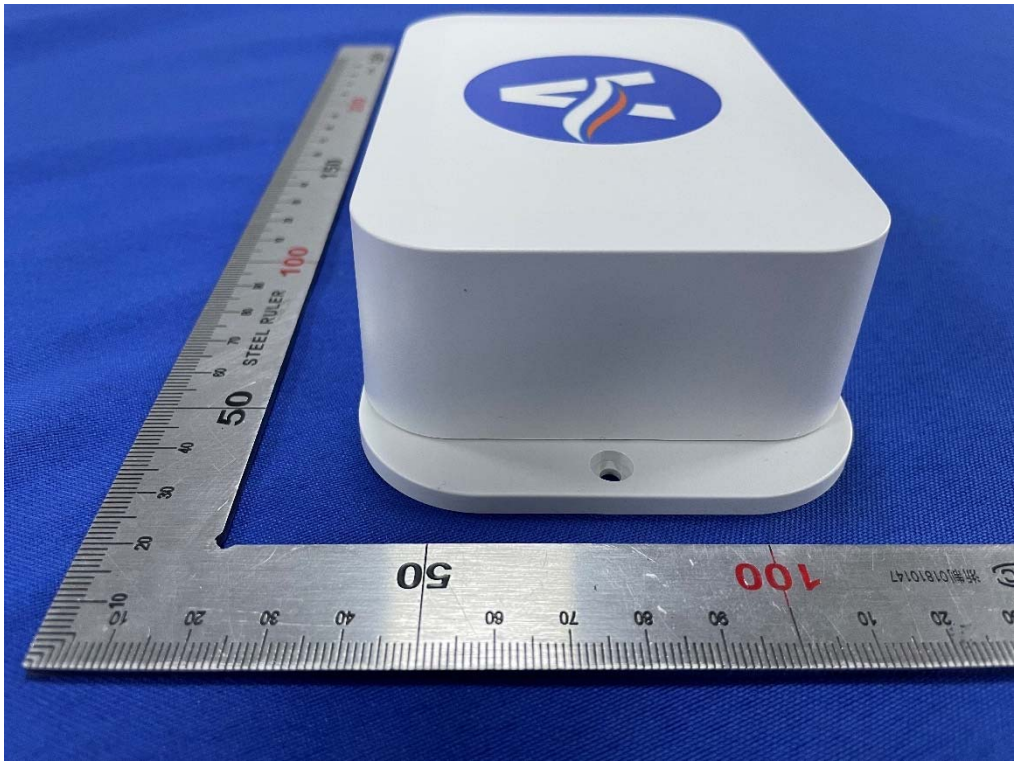
5.1 Photographs of the Sample



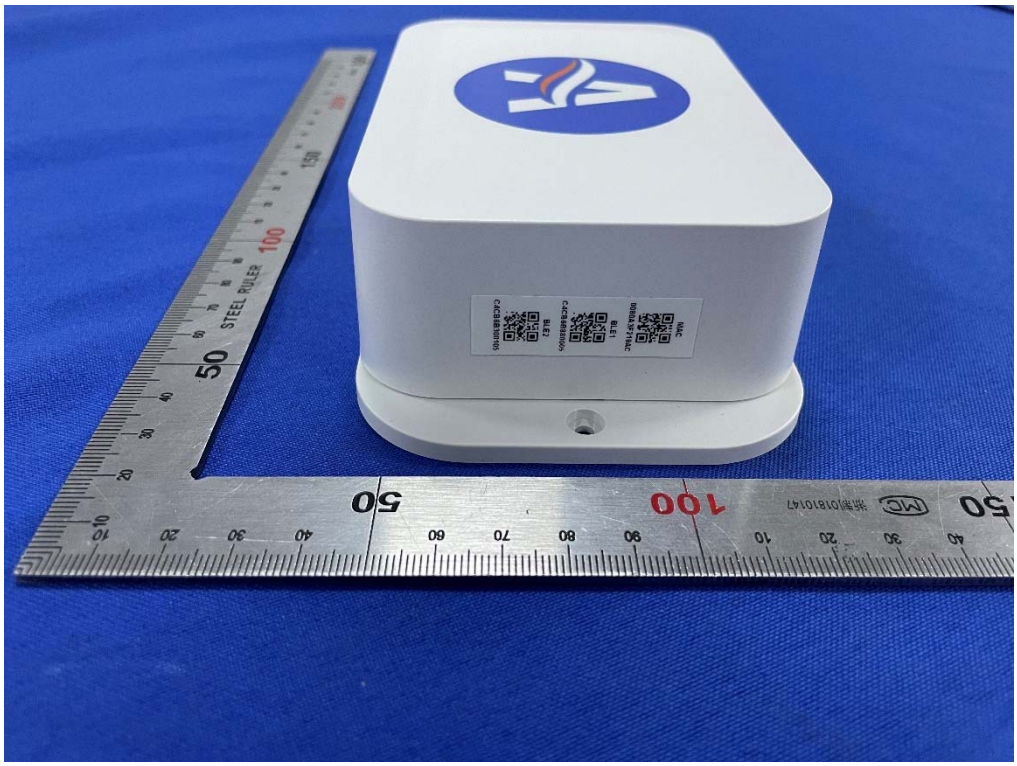
Front of the sample



Rear of the sample



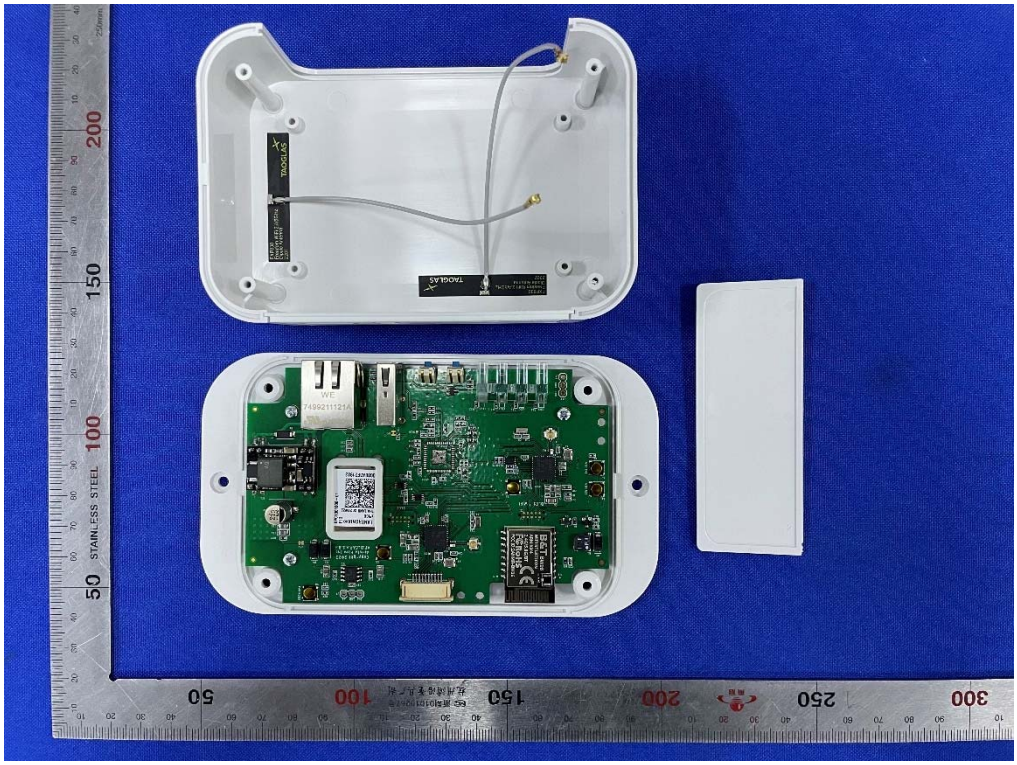
Left of the sample



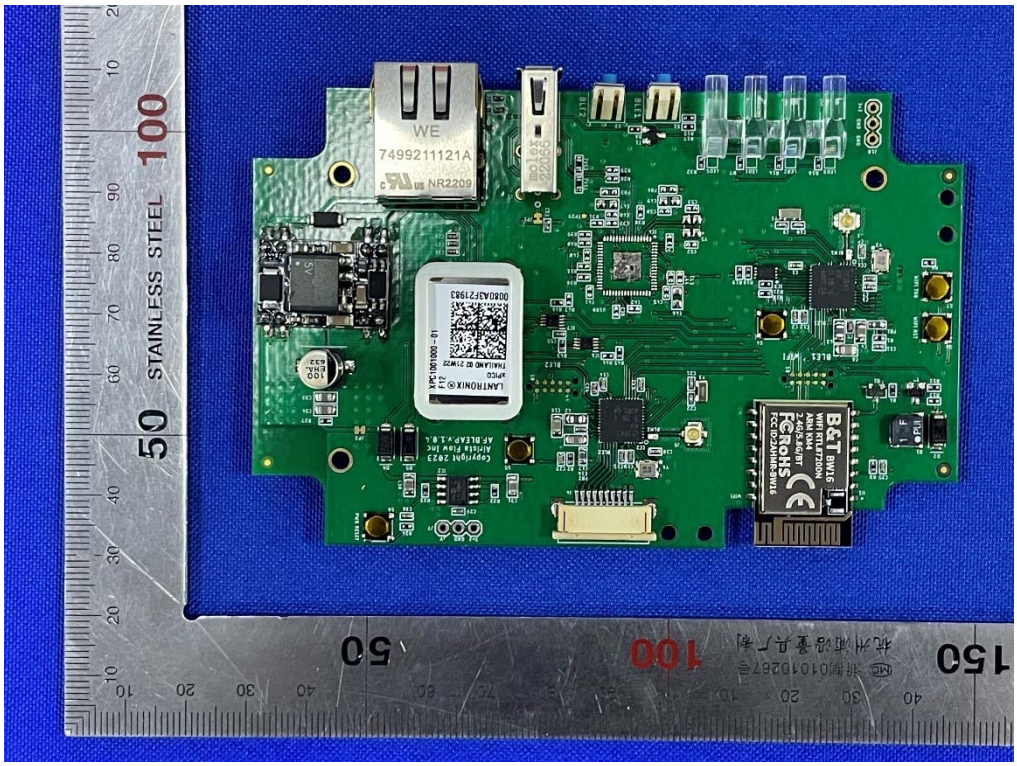
Right of the sample

Top of the sample

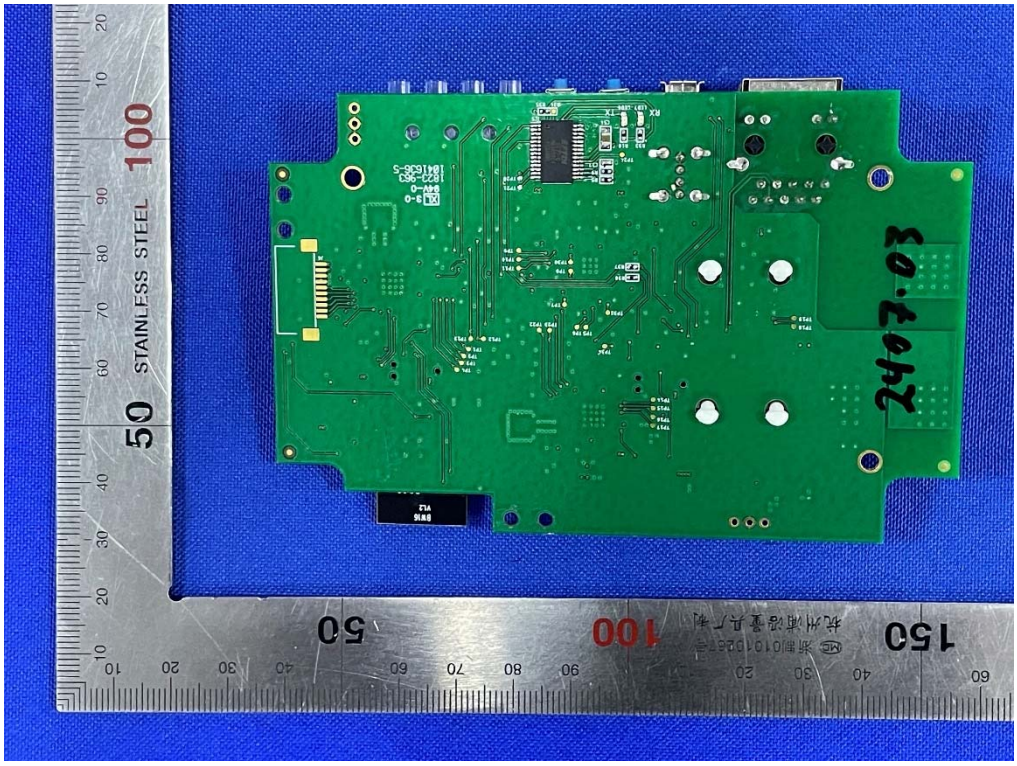
Bottom of the sample



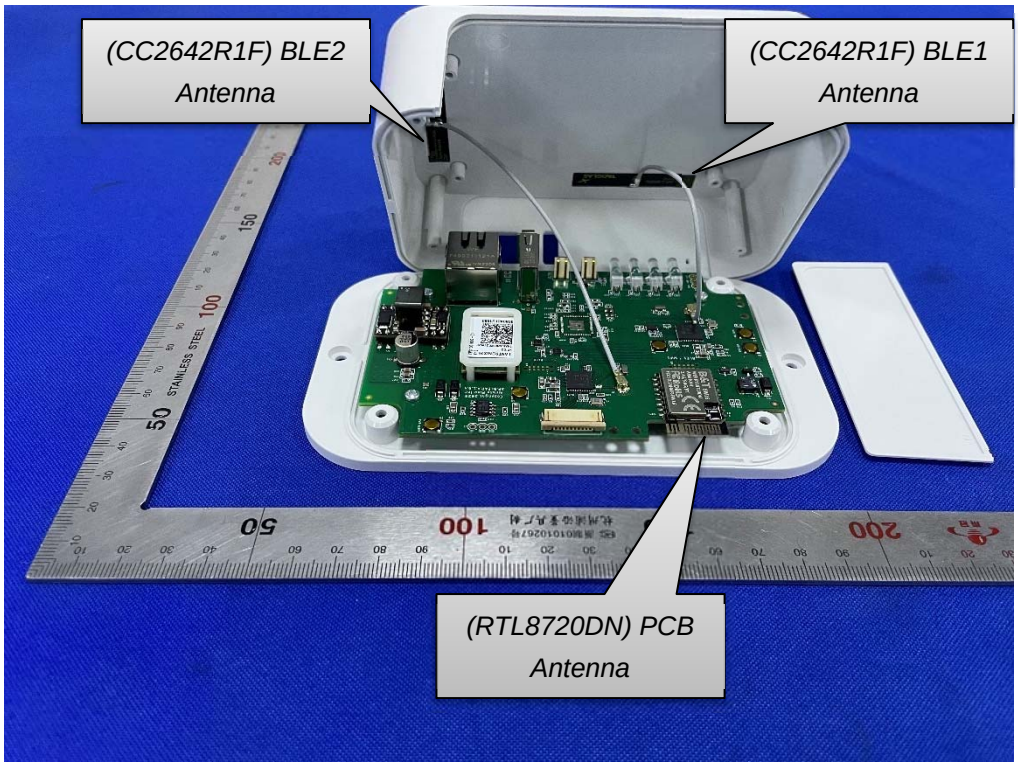
Open of the sample



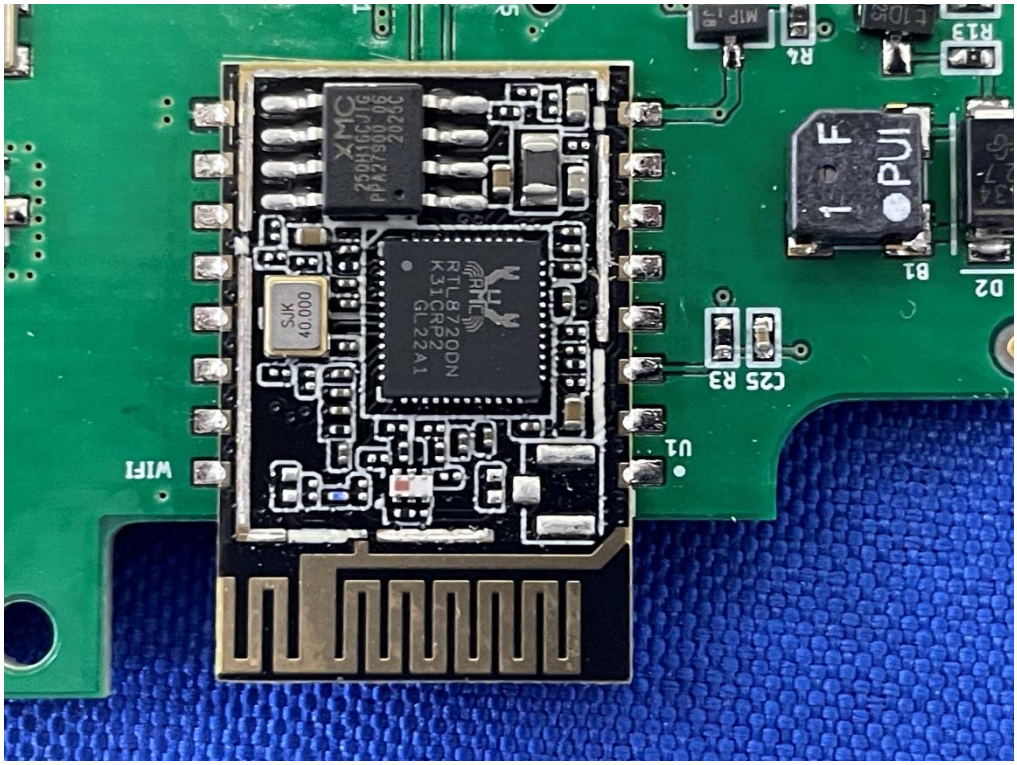
Internal-1 of the sample



Internal-2 of the sample

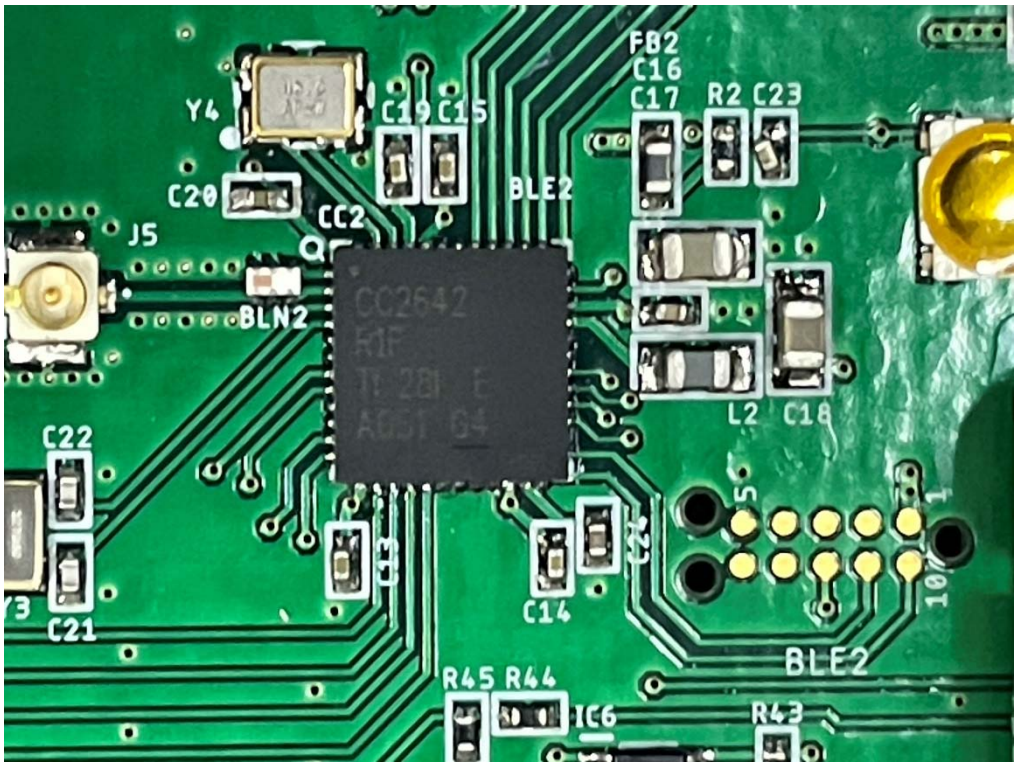


Antenna Position



XMC
RTL8720DN
K31CRP2
GL22A1
SJK
40.000
WIFI
U1
C25 R3
B1
D2
R4
R13

Chip-1



Y4
C19 C15
C20
CC2
J5
BLN2
BLE2
FB2
C16
C17
R2 C23
L2 C18
C22
C21
C14
R45 R44
IC6
R43
BLE2

Chip-2

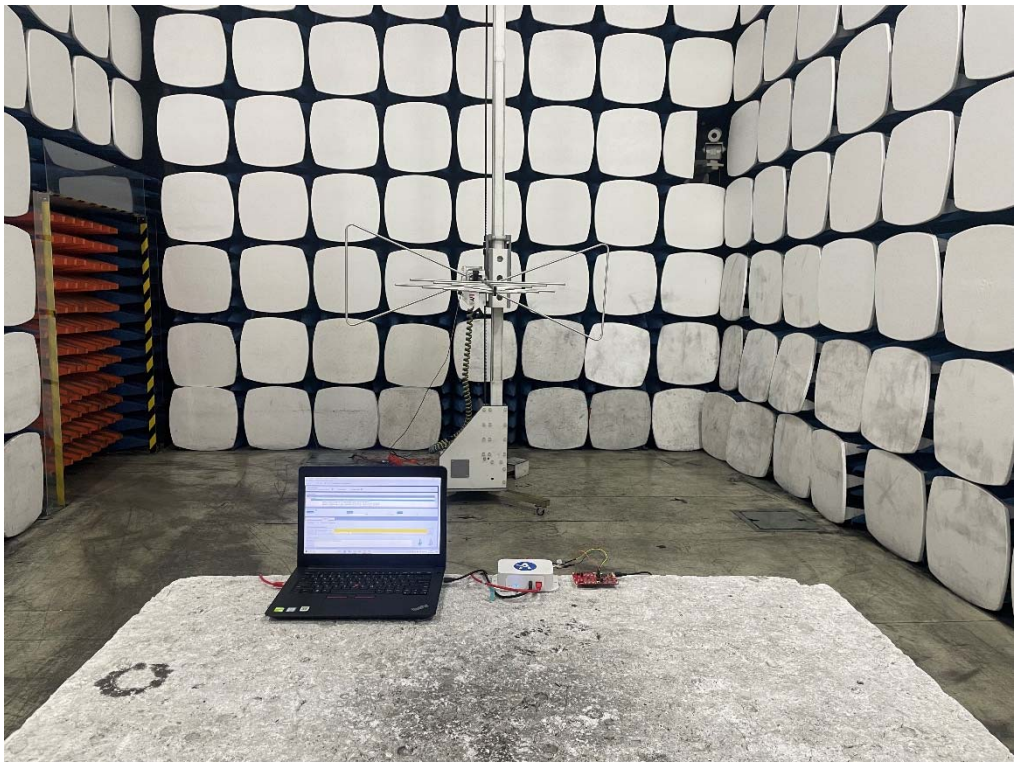
5.2 Set-up for Conducted Emissions

USB Input

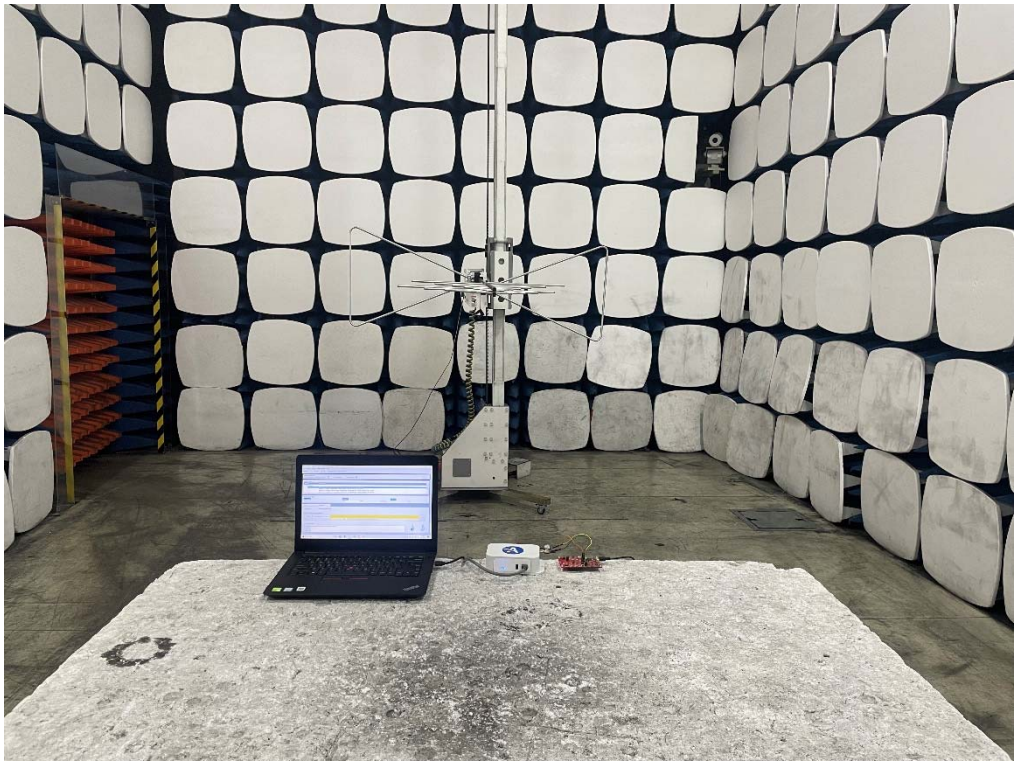
POE Input

5.3 Set-up for Conducted RF test at Antenna Port

5.4 Set-up for Spurious Emissions below 1GHz

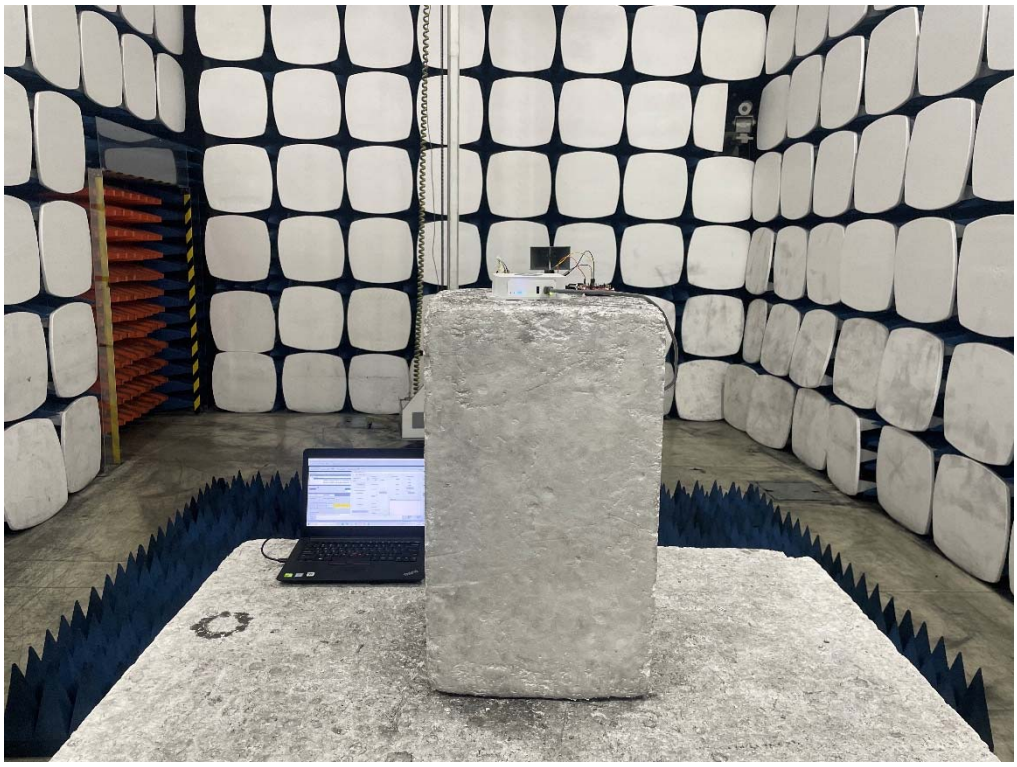


USB Input



POE Input

5.5 Set-up for Spurious Emissions above 1GHz



End of the report