

TEST REPORT

Report No.: SHE24050068-01AE Date: 2024-06-07 Page 76 of 95

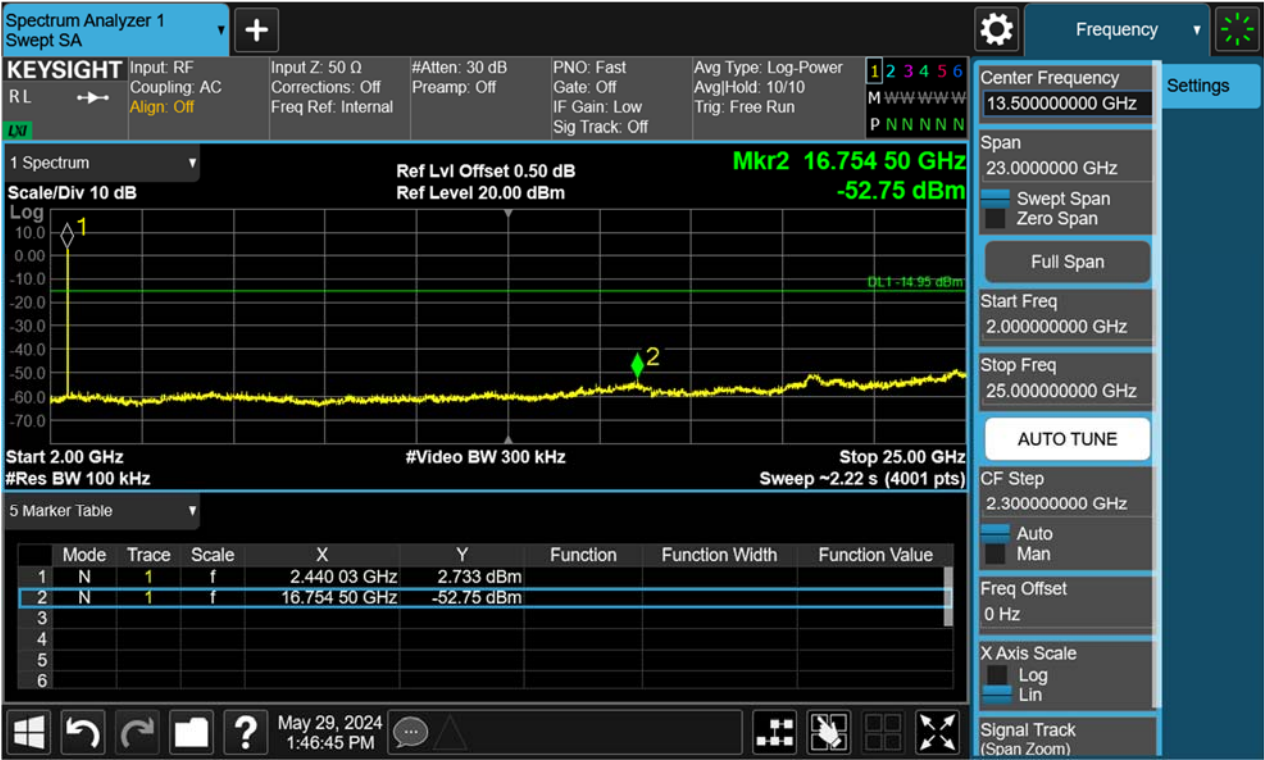
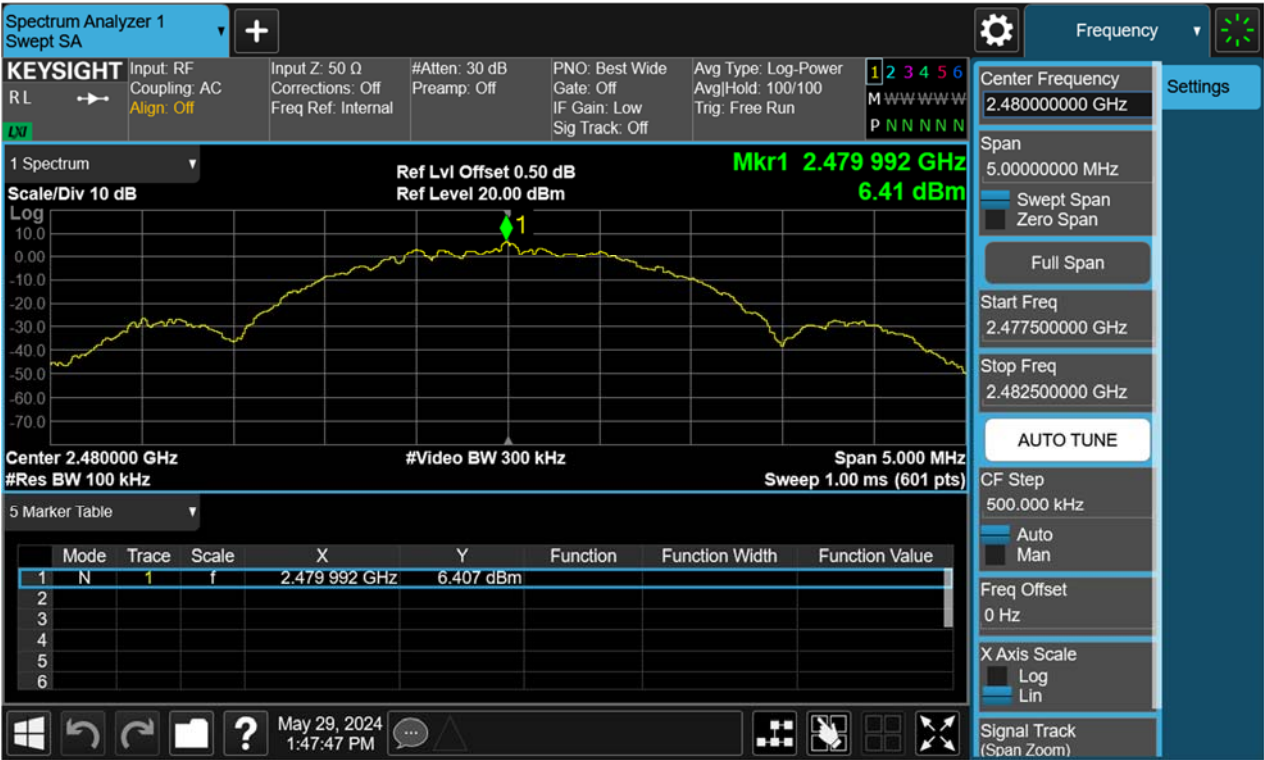


Figure 72: Conducted Spurious Emission & Authorized-band band-edge, 2480MHz, BLE-2Mbps Carrier Level



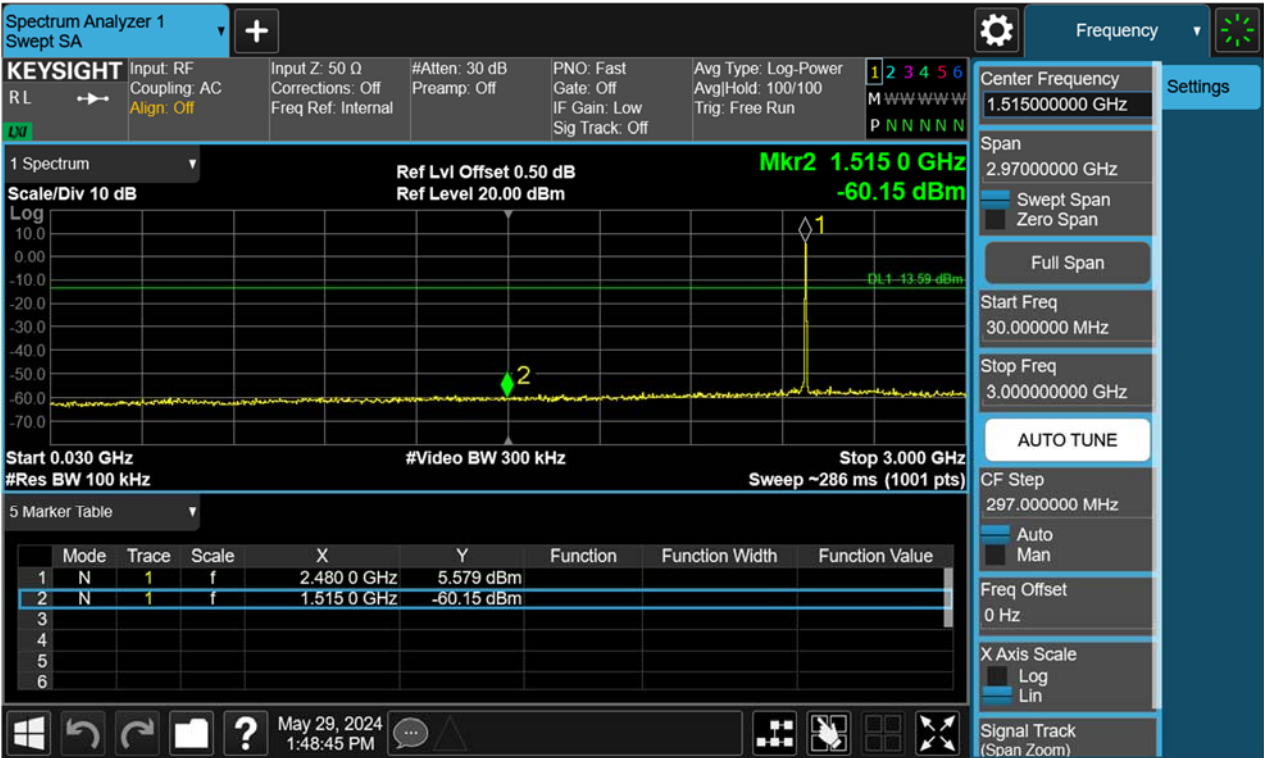
TEST REPORT

Report No.: SHE24050068-01AE Date: 2024-06-07 Page 77 of 95

Band Edge



Conducted spurious emissions 30MHz-25GHz

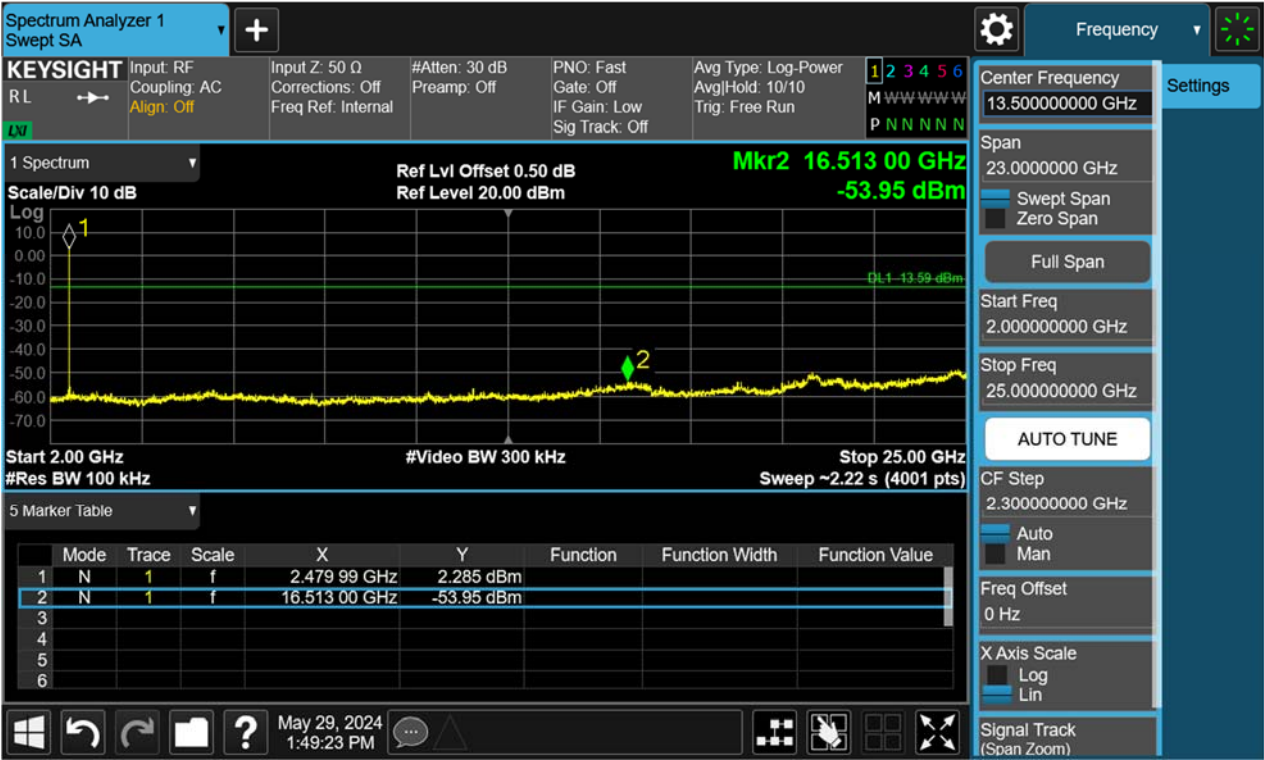


TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 78 of 95



TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 79 of 95

4.1.6 Radiated Emission

RESULT:

PASS

Test standard

: FCC Part 15.247(d), 15.205, 15.209

Requirement

: ANSI C63.10-2013 clause 11.12,
KDB 558074 D01 v05r02, Clause 8.6

Kind of test site

: 3m Semi-Anechoic Chamber

Test setup

Test Channel

: Low/Middle/High

Operation Mode

: A

Ambient temperature

: 24°C

Relative humidity

: 51%

Notes

01. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (CC2642R1F) BLE1 Antenna”.
02. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (CC2642R1F) BLE2 Antenna”.
03. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (RTL8720DN) BLE ”.

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported. In addition, During 30MHz to 1GHz test frequency range, only the worst mode data was reported in this report.
2. The spurious above 18GHz is noise only and 20dB below the limit. The value has no need to be reported.
3. 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.

TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 80 of 95

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

Ambient temperature

: 24°C

Relative humidity

: 51%

Notes

01. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (CC2642R1F) BLE1 Antenna”.
02. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (CC2642R1F) BLE2 Antenna”.
03. Test plots please refer to the annex document “SHE24050068-01AE DATA BLE-TX EXHIBIT A of (RTL8720DN) BLE ”.

TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 81 of 95

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	: Connected to GND
Ambient temperature	: 24.2°C
Relative humidity	: 47%

For details refer to following test plot.

TEST REPORT

Report No.: SHE24050068-01AE

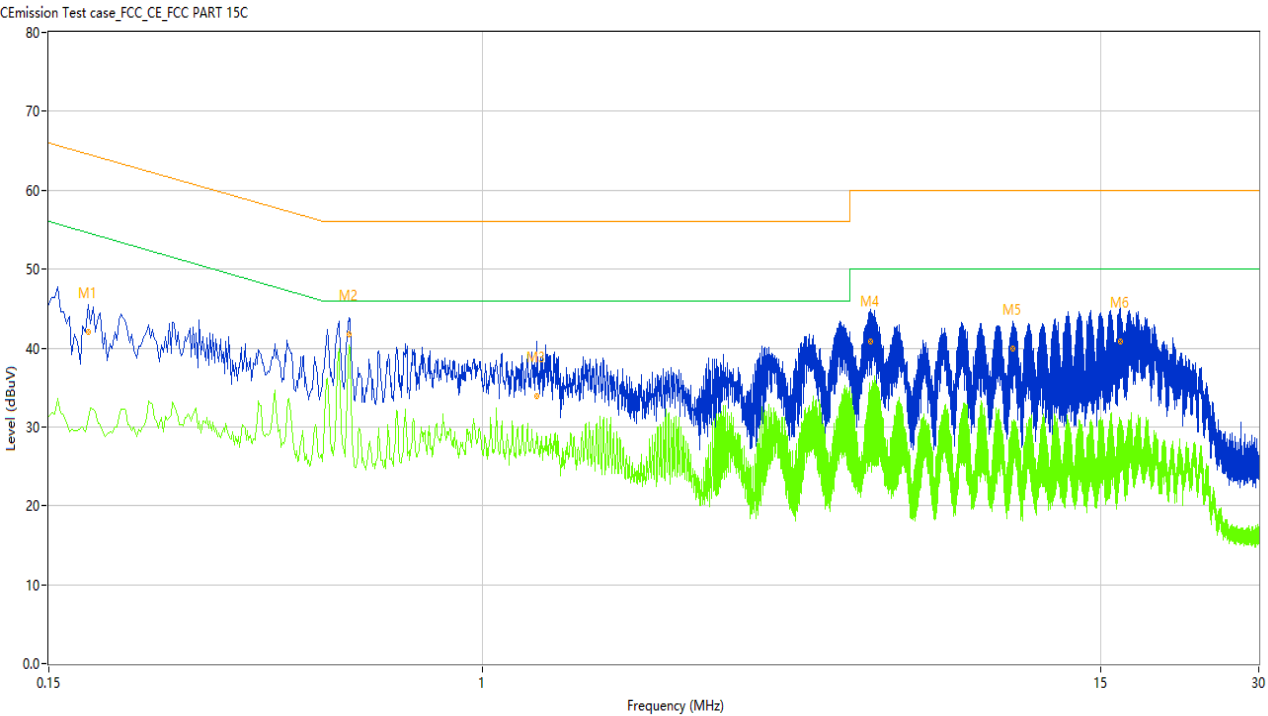
Date: 2024-06-07

Page 82 of 95

Note: The all configurations were tested respectively, but only the worst data (at low channel) shown here.

USB Input:

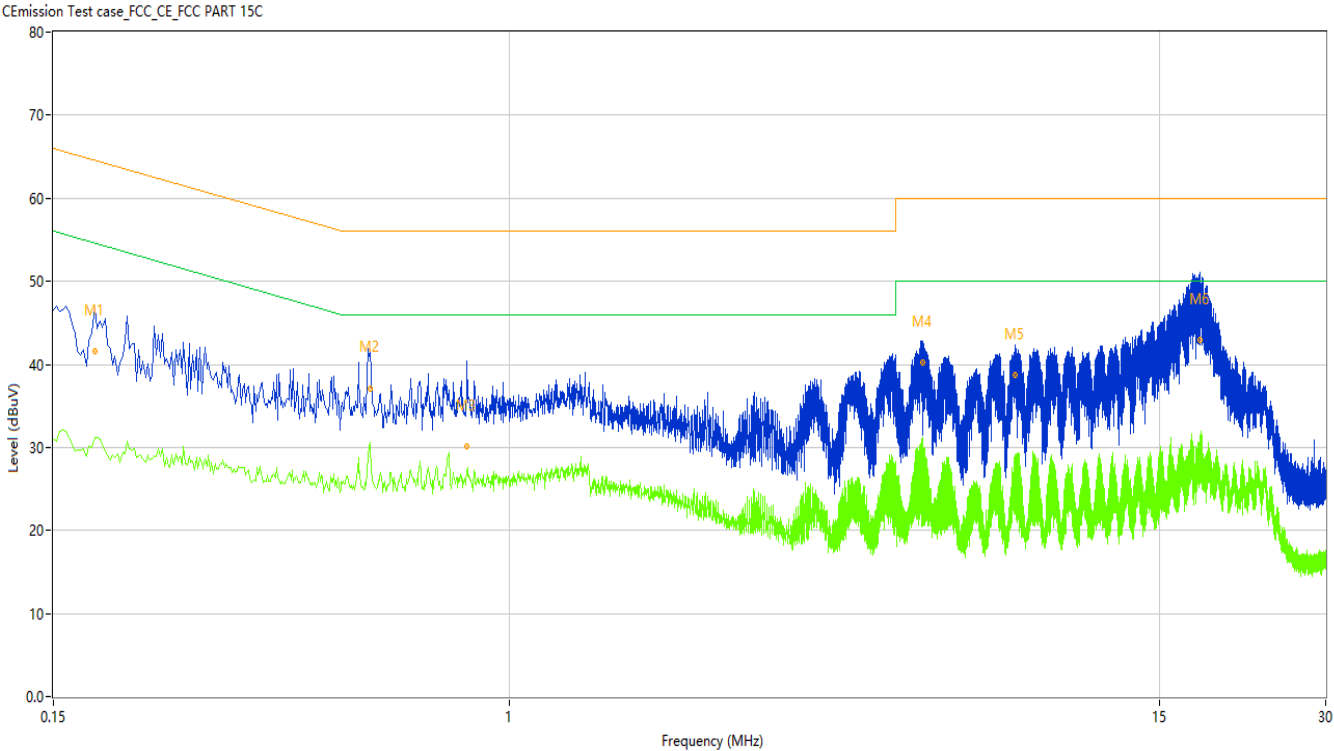
Figure 73: Conducted Emission on AC Mains, L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.178	46.56	9.93	64.58	18.02	Peak	L	Pass
1*	0.178	42.10	9.93	64.58	22.48	QP	L	Pass
1**	0.178	31.00	9.93	54.58	23.58	AV	L	Pass
2	0.558	44.06	9.96	56.00	11.94	Peak	L	Pass
2*	0.558	41.73	9.96	56.00	14.27	QP	L	Pass
2**	0.558	40.36	9.96	46.00	5.64	AV	L	Pass
3	1.270	38.20	9.84	56.00	17.80	Peak	L	Pass
3*	1.270	33.87	9.84	56.00	22.13	QP	L	Pass
3**	1.270	29.23	9.84	46.00	16.77	AV	L	Pass
4	5.486	44.63	9.81	60.00	15.37	Peak	L	Pass
4*	5.486	40.77	9.81	60.00	19.23	QP	L	Pass
4**	5.486	34.65	9.81	50.00	15.35	AV	L	Pass
5	10.198	43.14	9.68	60.00	16.86	Peak	L	Pass
5*	10.198	39.97	9.68	60.00	20.03	QP	L	Pass
5**	10.198	30.39	9.68	50.00	19.61	AV	L	Pass
6	16.344	44.99	9.49	60.00	15.01	Peak	L	Pass
6*	16.344	40.79	9.49	60.00	19.21	QP	L	Pass
6**	16.344	30.72	9.49	50.00	19.28	AV	L	Pass

TEST REPORT

Figure 74: Conducted Emission on AC Mains, N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.178	46.03	10.02	64.58	18.55	Peak	N	Pass
1*	0.178	41.55	10.02	64.58	23.03	QP	N	Pass
1**	0.178	31.21	10.02	54.58	23.37	AV	N	Pass
2	0.562	40.62	10.06	56.00	15.38	Peak	N	Pass
2*	0.562	37.13	10.06	56.00	18.87	QP	N	Pass
2**	0.562	30.10	10.06	46.00	15.90	AV	N	Pass
3	0.840	38.13	10.04	56.00	17.87	Peak	N	Pass
3*	0.840	30.13	10.04	56.00	25.87	QP	N	Pass
3**	0.840	27.17	10.04	46.00	18.83	AV	N	Pass
4	5.600	43.54	9.76	60.00	16.46	Peak	N	Pass
4*	5.600	40.28	9.76	60.00	19.72	QP	N	Pass
4**	5.600	29.74	9.76	50.00	20.26	AV	N	Pass
5	8.242	42.11	9.81	60.00	17.89	Peak	N	Pass
5*	8.242	38.71	9.81	60.00	21.29	QP	N	Pass
5**	8.242	29.14	9.81	50.00	20.86	AV	N	Pass
6	17.738	51.09	9.51	60.00	8.91	Peak	N	Pass
6*	17.738	43.00	9.51	60.00	17.00	QP	N	Pass
6**	17.738	30.30	9.51	50.00	19.70	AV	N	Pass

TEST REPORT

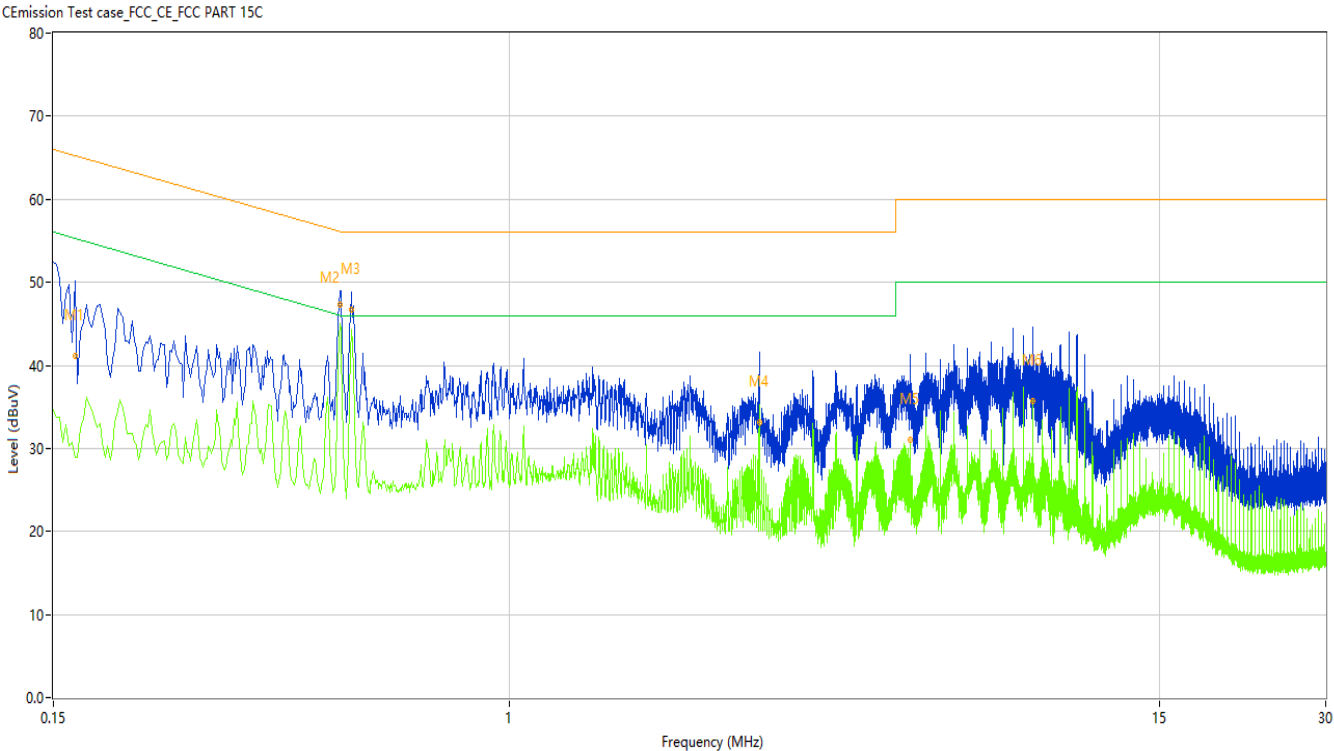
Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 84 of 95

POE Input:

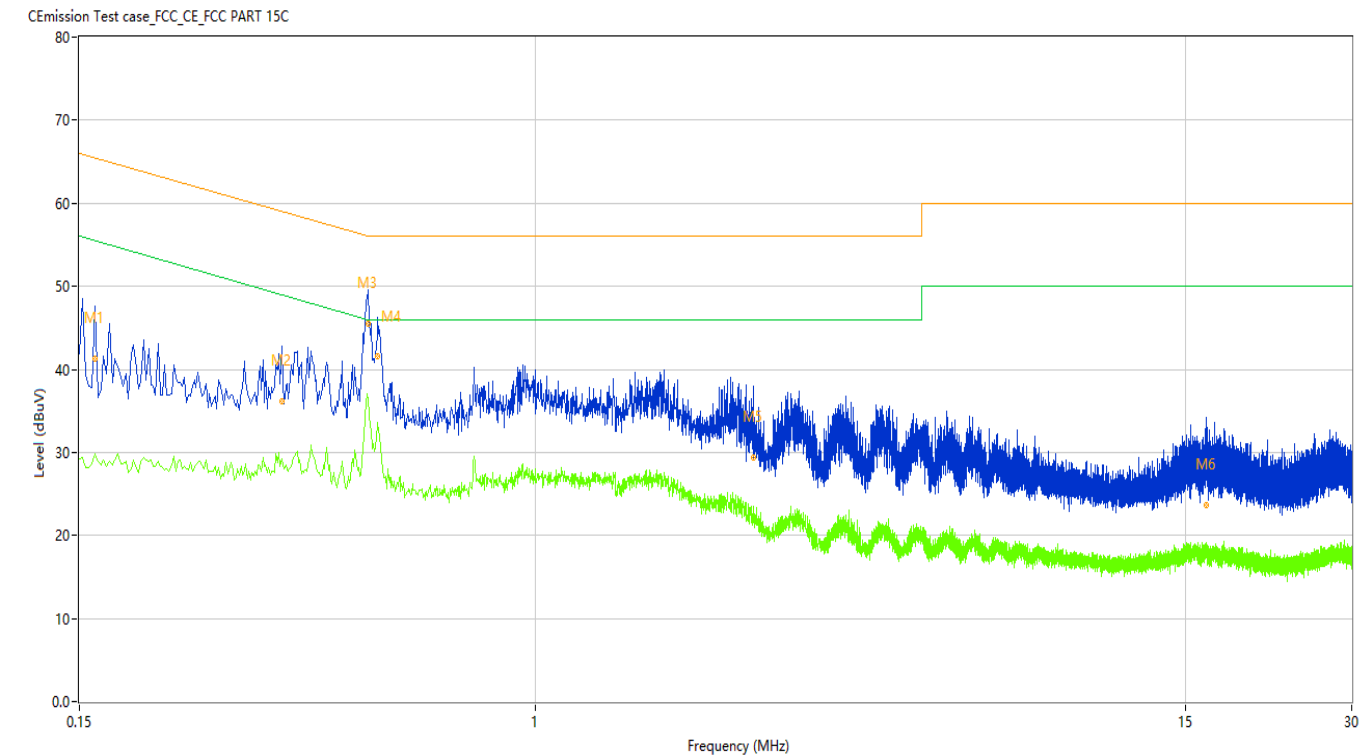
Figure 75: Conducted Emission on AC Mains, L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.164	61.74	9.94	65.26	3.52	Peak	L	Pass
1*	0.164	41.12	9.94	65.26	24.14	QP	L	Pass
1**	0.164	28.92	9.94	55.26	26.34	AV	L	Pass
2	0.494	49.91	9.96	56.10	6.19	Peak	L	Pass
2*	0.494	47.30	9.96	56.10	8.80	QP	L	Pass
2**	0.494	45.08	9.96	46.10	1.02	AV	L	Pass
3	0.518	48.77	9.96	56.00	7.23	Peak	L	Pass
3*	0.518	46.66	9.96	56.00	9.34	QP	L	Pass
3**	0.518	44.07	9.96	46.00	1.93	AV	L	Pass
4	2.838	38.33	9.83	56.00	17.67	Peak	L	Pass
4*	2.838	33.11	9.83	56.00	22.89	QP	L	Pass
4**	2.838	35.32	9.83	46.00	10.68	AV	L	Pass
5	5.318	36.92	9.82	60.00	23.08	Peak	L	Pass
5*	5.318	31.05	9.82	60.00	28.95	QP	L	Pass
5**	5.318	29.37	9.82	50.00	20.63	AV	L	Pass
6	8.874	41.08	9.72	60.00	18.92	Peak	L	Pass
6*	8.874	35.73	9.72	60.00	24.27	QP	L	Pass
6**	8.874	35.65	9.72	50.00	14.35	AV	L	Pass

TEST REPORT

Figure 76: Conducted Emission on AC Mains, N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.160	65.22	9.94	65.46	0.24	Peak	N	Pass
1*	0.160	41.31	9.94	65.46	24.15	QP	N	Pass
1**	0.160	29.89	9.94	55.46	25.57	AV	N	Pass
2	0.348	43.64	9.96	59.01	15.37	Peak	N	Pass
2*	0.348	36.13	9.96	59.01	22.88	QP	N	Pass
2**	0.348	29.17	9.96	49.01	19.84	AV	N	Pass
3	0.500	49.76	9.96	56.00	6.24	Peak	N	Pass
3*	0.500	45.53	9.96	56.00	10.47	QP	N	Pass
3**	0.500	36.63	9.96	46.00	9.37	AV	N	Pass
4	0.520	46.64	9.96	56.00	9.36	Peak	N	Pass
4*	0.520	41.63	9.96	56.00	14.37	QP	N	Pass
4**	0.520	33.56	9.96	46.00	12.44	AV	N	Pass
5	2.488	36.87	9.85	56.00	19.13	Peak	N	Pass
5*	2.488	29.40	9.85	56.00	26.60	QP	N	Pass
5**	2.488	23.52	9.85	46.00	22.48	AV	N	Pass
6	16.340	32.07	9.49	60.00	27.93	Peak	N	Pass
6*	16.340	23.70	9.49	60.00	36.30	QP	N	Pass
6**	16.340	18.39	9.49	50.00	31.61	AV	N	Pass

TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 86 of 95

5 Appendixes

5.1 Photographs of the Sample



Front of the sample



Rear of the sample

TEST REPORT

Report No.: SHE24050068-01AE Date: 2024-06-07 Page 87 of 95



Left of the sample



Right of the sample

TEST REPORT

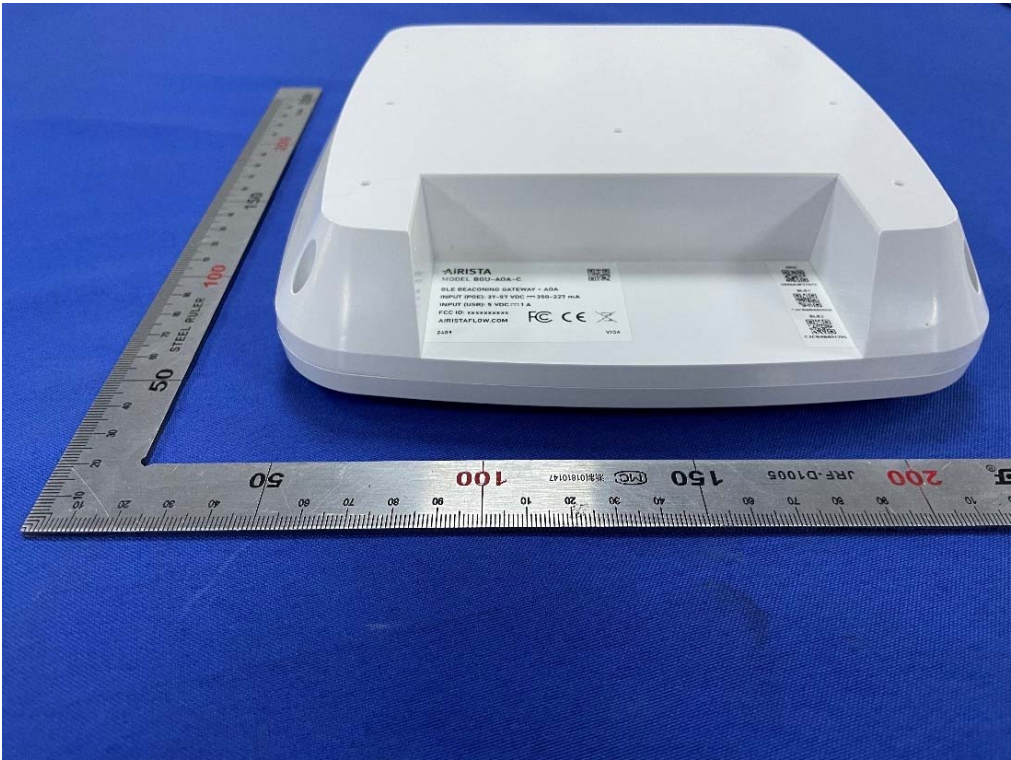
Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 88 of 95



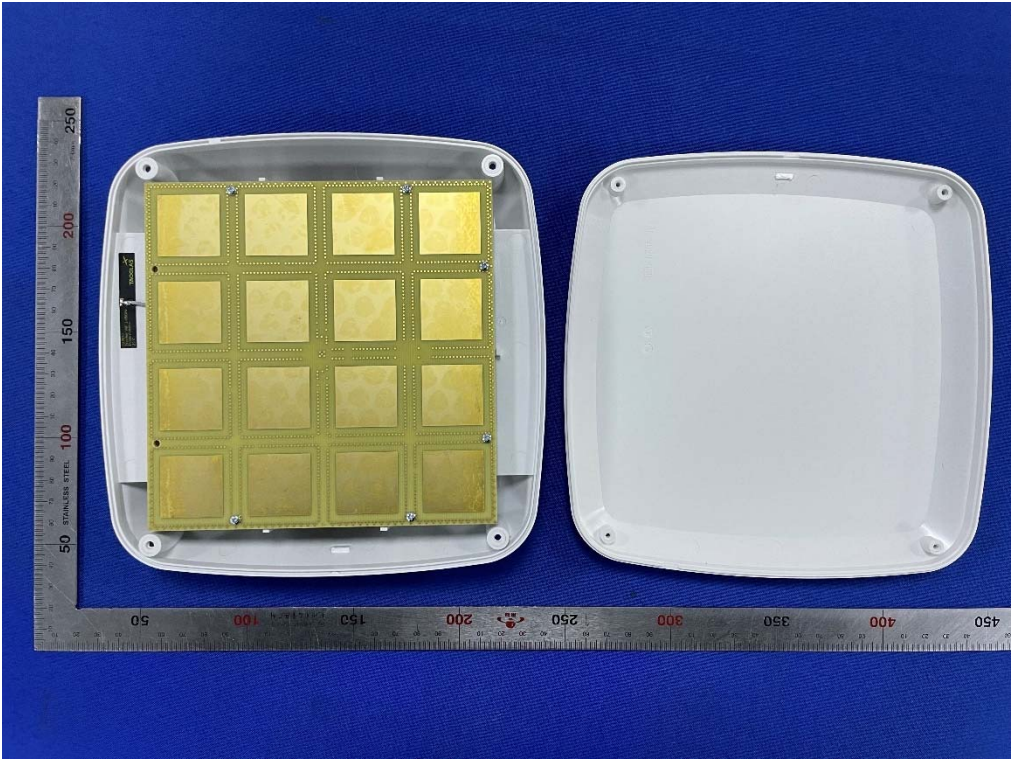
Top of the sample



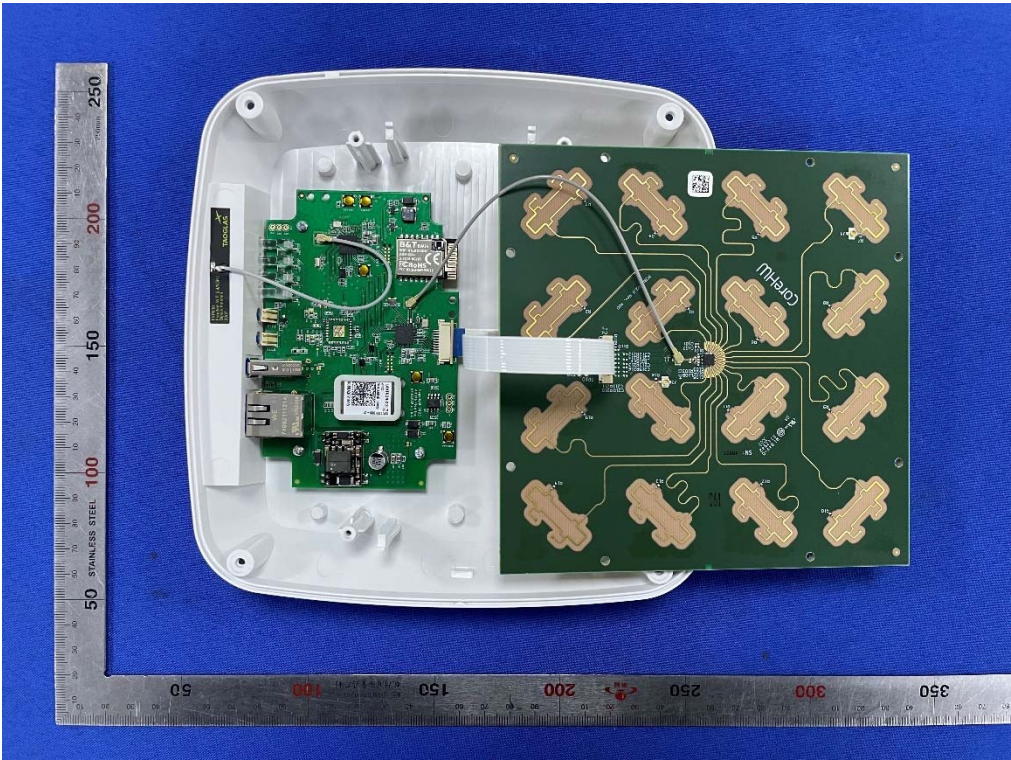
Bottom of the sample

TEST REPORT

Report No.: SHE24050068-01AE Date: 2024-06-07 Page 89 of 95

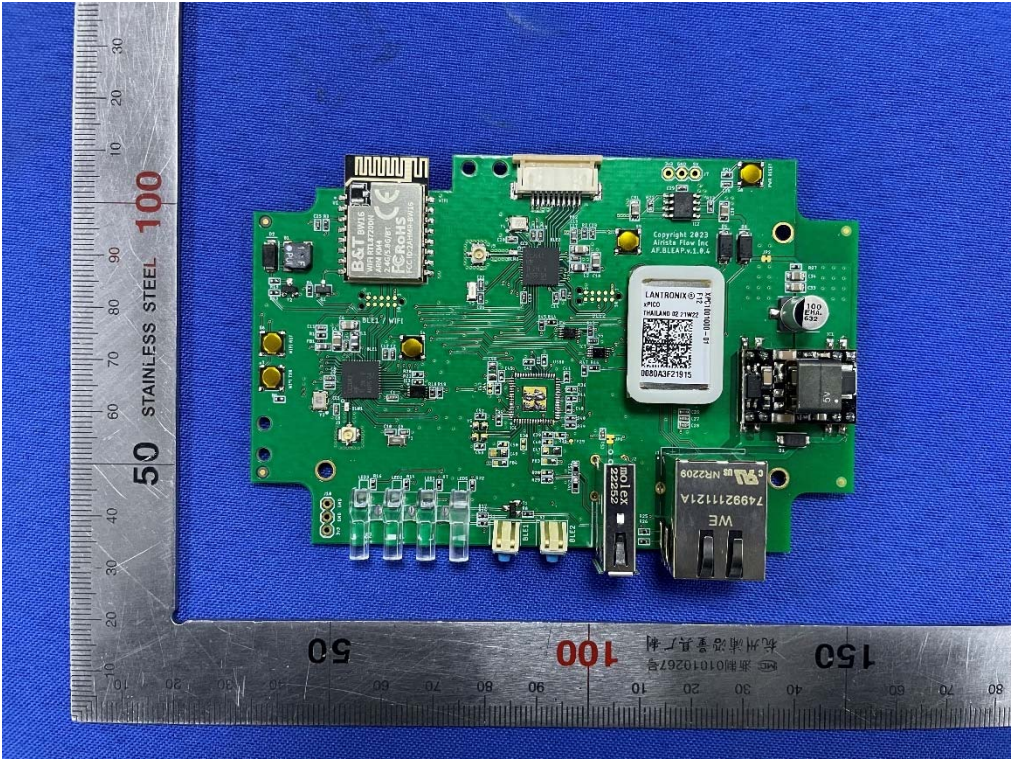


Open-1 of the sample

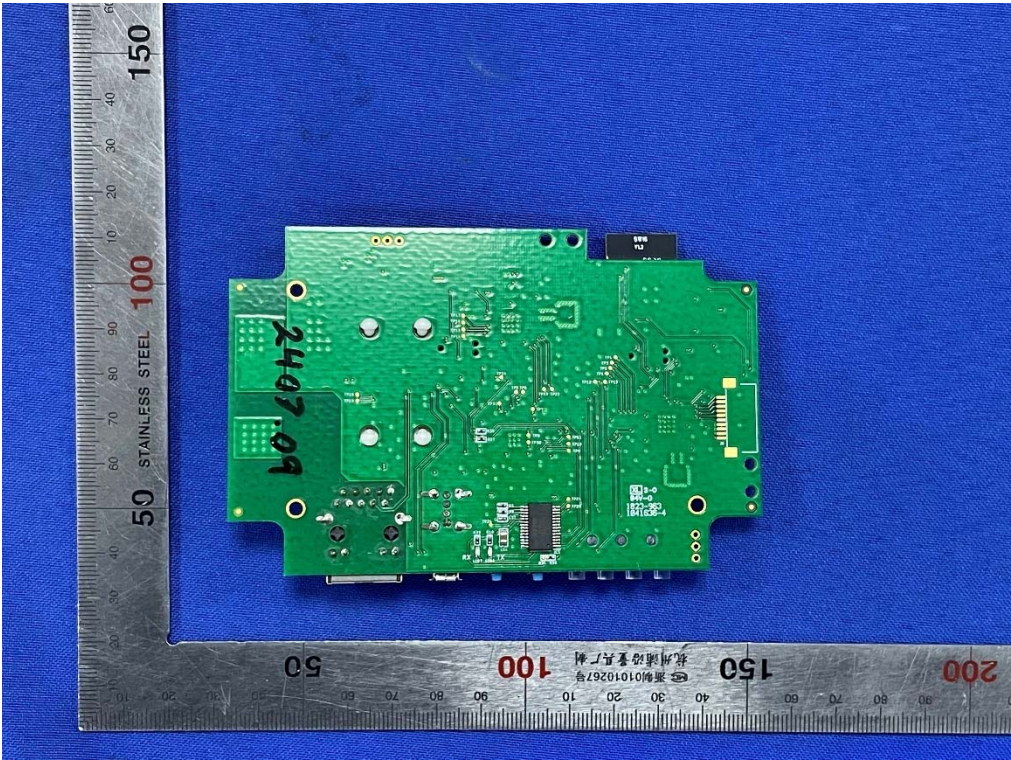


Open-2 of the sample

TEST REPORT

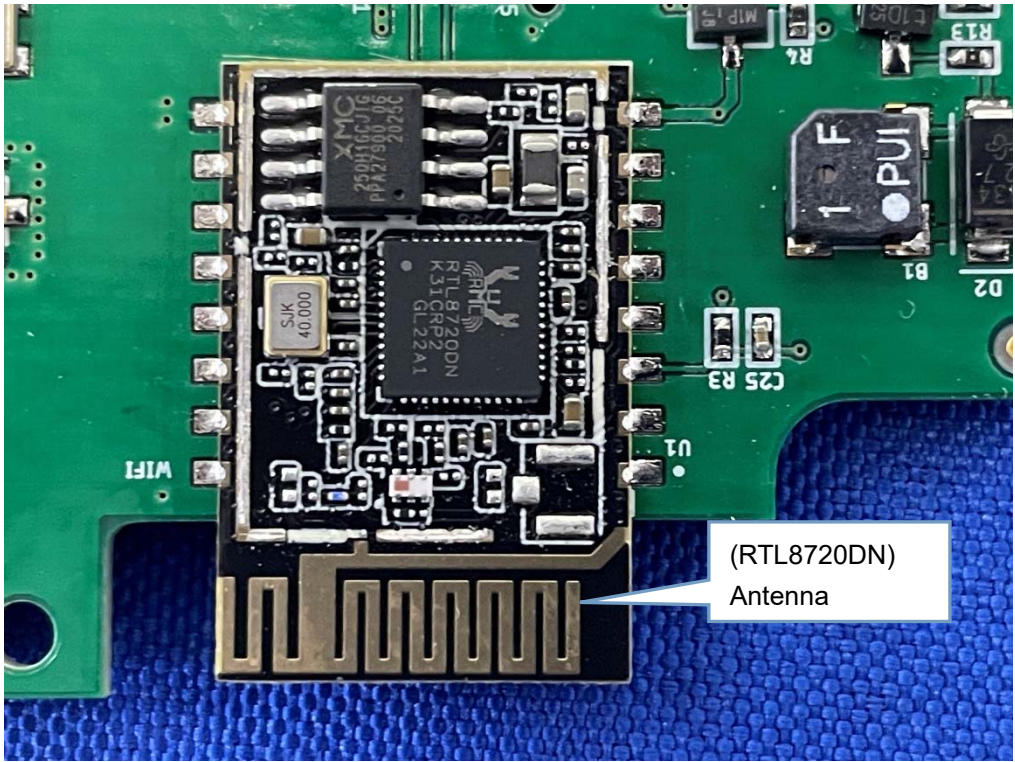


Internal-1 of the sample

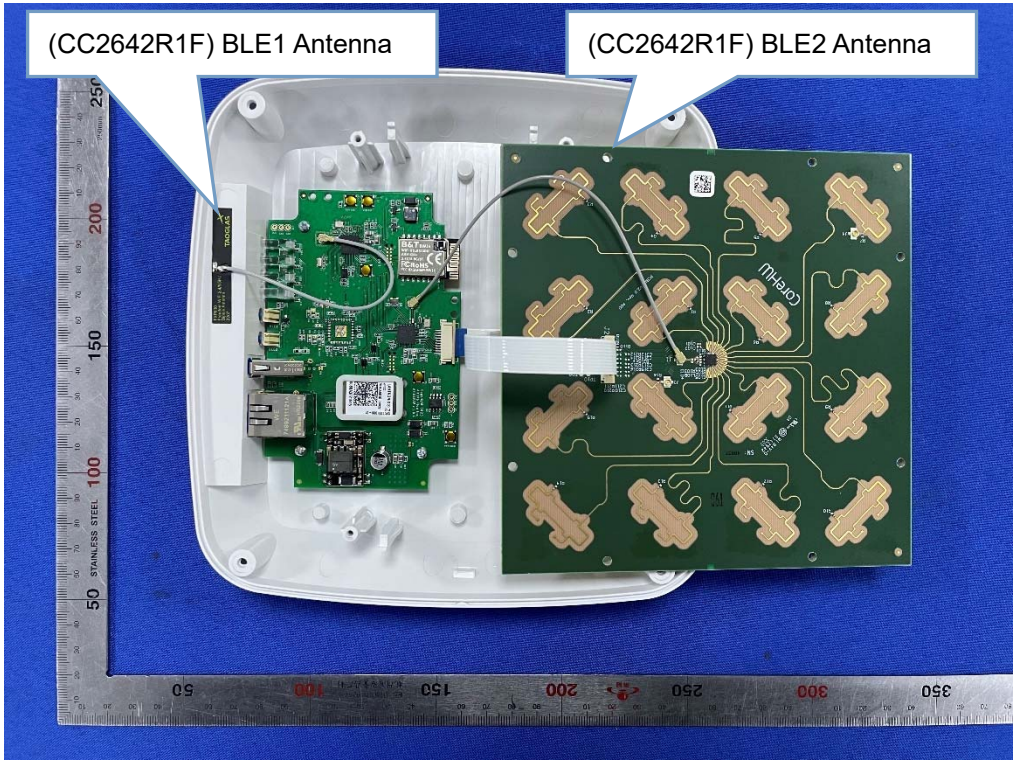


Internal-2 of the sample

TEST REPORT



Internal-3 of the sample



Antenna Position

TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 92 of 95

5.2 Set-up for Conducted Emissions



USB Input



POE Input

TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 93 of 95

5.3 Set-up for Conducted RF test at Antenna Port



CC2642R1F-Chip



RTL8720DN-Chip

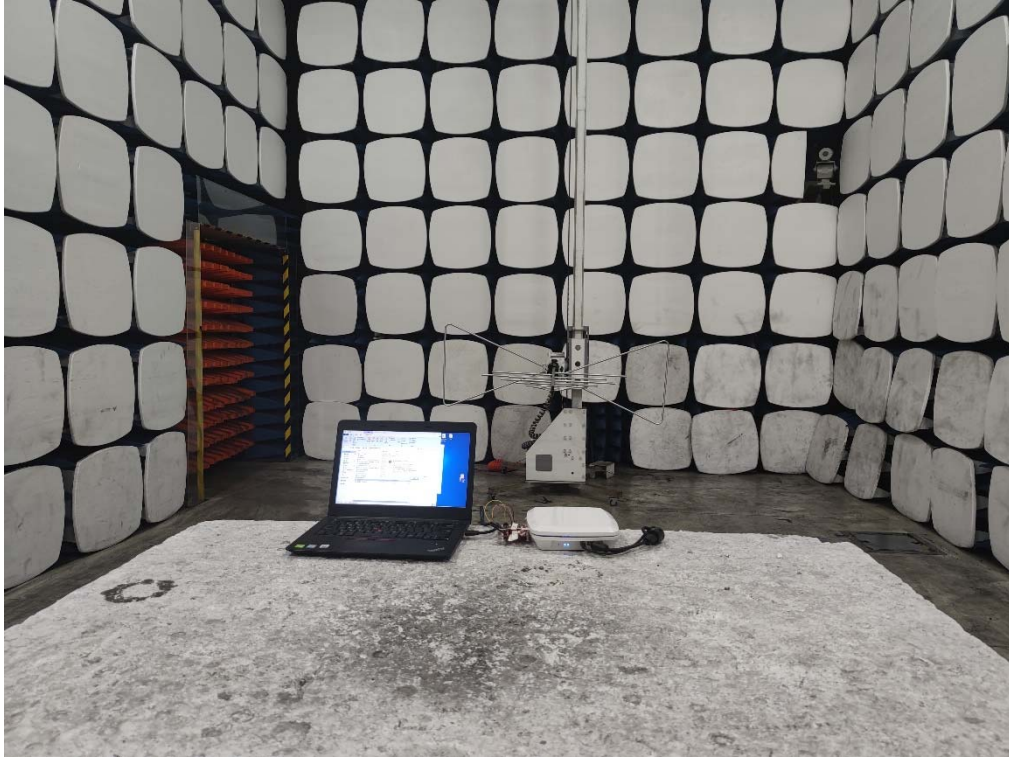
TEST REPORT

Report No.: SHE24050068-01AE

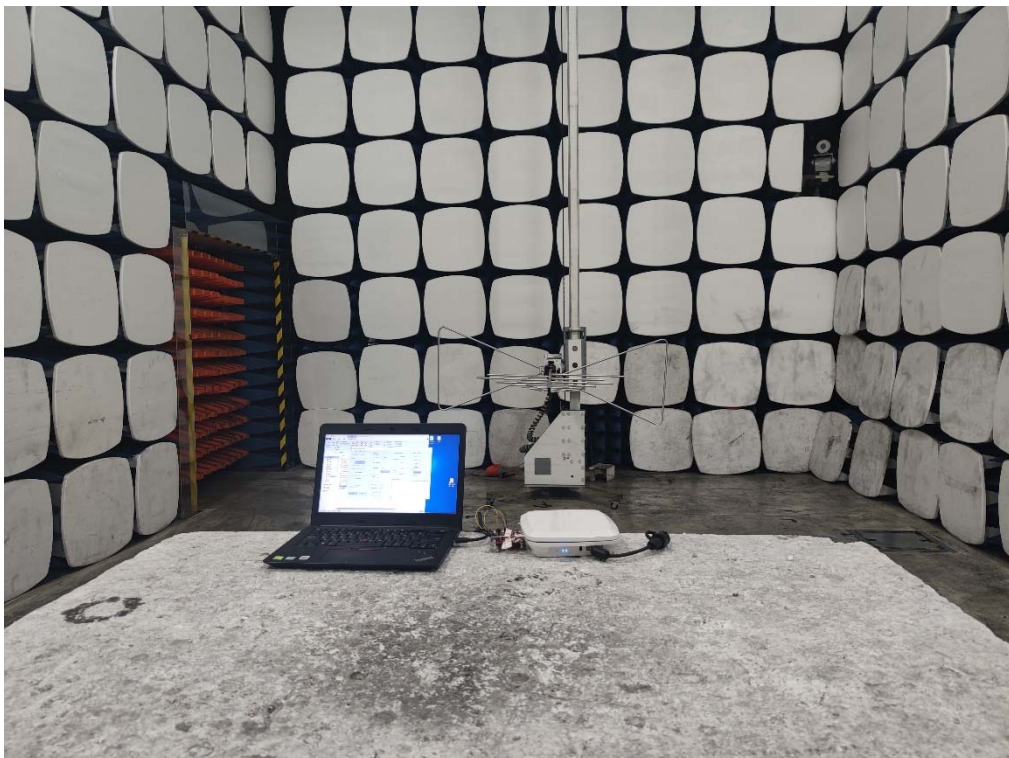
Date: 2024-06-07

Page 94 of 95

5.4 Set-up for Spurious Emissions below 1GHz



USB Input



POE Input

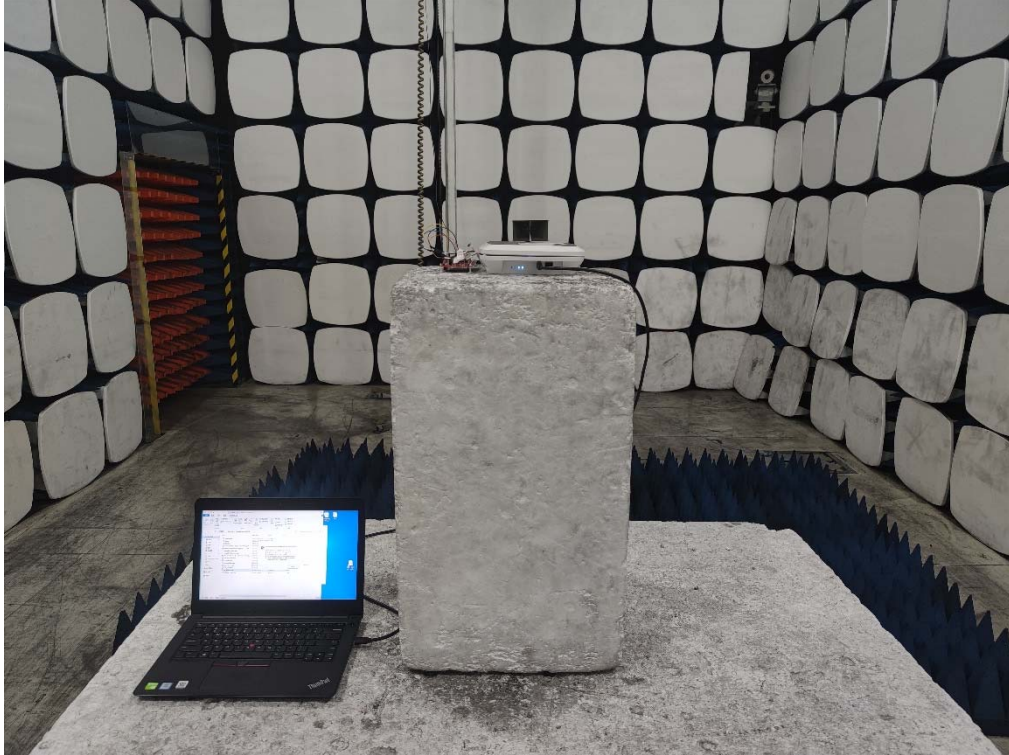
TEST REPORT

Report No.: SHE24050068-01AE

Date: 2024-06-07

Page 95 of 95

5.5 Set-up for Spurious Emissions above 1GHz



End of the report