



LTE FDD Band 4 Channel Bandwidth 20MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-42.55	4.02	3.00	12.21	-34.36	-13.00	21.36	H
5235.0	-46.47	5.11	3.00	13.26	-38.32	-13.00	25.32	H
3490.0	-48.42	4.02	3.00	12.21	-40.23	-13.00	27.23	V
5235.0	-48.23	5.11	3.00	13.26	-40.08	-13.00	27.08	V

Series Model No.: C7 Ultra

LTE FDD Band 4 Channel Bandwidth 1.4MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-42.5	4.02	3.00	12.21	-34.31	-13.00	21.31	H
5262.9	-46.64	5.11	3.00	13.26	-38.49	-13.00	25.49	H
3508.6	-48.46	4.02	3.00	12.21	-40.27	-13.00	27.27	V
5262.9	-48.8	5.11	3.00	13.26	-40.65	-13.00	27.65	V

LTE FDD Band 4 Channel Bandwidth 3MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-43.3	4.02	3.00	12.21	-35.11	-13.00	22.11	H
5260.5	-46.45	5.11	3.00	13.26	-38.3	-13.00	25.3	H
3507.0	-49.18	4.02	3.00	12.21	-40.99	-13.00	27.99	V
5260.5	-48.59	5.11	3.00	13.26	-40.44	-13.00	27.44	V

LTE FDD Band 4 Channel Bandwidth 5MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-42.9	4.02	3.00	12.21	-34.71	-13.00	21.71	H
5257.5	-47.26	5.11	3.00	13.26	-39.11	-13.00	26.11	H
3505.0	-48.99	4.02	3.00	12.21	-40.8	-13.00	27.8	V
5257.5	-48.23	5.11	3.00	13.26	-40.08	-13.00	27.08	V

LTE FDD Band 4 Channel Bandwidth 10MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-43.24	4.02	3.00	12.21	-35.05	-13.00	22.05	H
5250.0	-47.09	5.11	3.00	13.26	-38.94	-13.00	25.94	H
3500.0	-48.64	4.02	3.00	12.21	-40.45	-13.00	27.45	V
5250.0	-48.2	5.11	3.00	13.26	-40.05	-13.00	27.05	V

LTE FDD Band 4 Channel Bandwidth 15MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.87	4.02	3.00	12.21	-34.68	-13.00	21.68	H
5242.5	-46.92	5.11	3.00	13.26	-38.77	-13.00	25.77	H
3495.0	-48.45	4.02	3.00	12.21	-40.26	-13.00	27.26	V
5242.5	-48.21	5.11	3.00	13.26	-40.06	-13.00	27.06	V



LTE FDD Band 4 Channel Bandwidth 20MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-43.23	4.02	3.00	12.21	-35.04	-13.00	22.04	H
5235.0	-46.67	5.11	3.00	13.26	-38.52	-13.00	25.52	H
3490.0	-49.15	4.02	3.00	12.21	-40.96	-13.00	27.96	V
5235.0	-48.69	5.11	3.00	13.26	-40.54	-13.00	27.54	V

LTE FDD Band 4 Channel Bandwidth 1.4MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-43.28	4.02	3.00	12.21	-35.09	-13.00	22.09	H
5262.9	-46.38	5.11	3.00	13.26	-38.23	-13.00	25.23	H
3508.6	-48.29	4.02	3.00	12.21	-40.1	-13.00	27.1	V
5262.9	-48.4	5.11	3.00	13.26	-40.25	-13.00	27.25	V

LTE FDD Band 4 Channel Bandwidth 3MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-43.12	4.02	3.00	12.21	-34.93	-13.00	21.93	H
5260.5	-46.86	5.11	3.00	13.26	-38.71	-13.00	25.71	H
3507.0	-48.3	4.02	3.00	12.21	-40.11	-13.00	27.11	V
5260.5	-48.25	5.11	3.00	13.26	-40.1	-13.00	27.1	V

LTE FDD Band 4 Channel Bandwidth 5MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-43.25	4.02	3.00	12.21	-35.06	-13.00	22.06	H
5257.5	-46.89	5.11	3.00	13.26	-38.74	-13.00	25.74	H
3505.0	-48.97	4.02	3.00	12.21	-40.78	-13.00	27.78	V
5257.5	-48.18	5.11	3.00	13.26	-40.03	-13.00	27.03	V

LTE FDD Band 4 Channel Bandwidth 10MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-43.07	4.02	3.00	12.21	-34.88	-13.00	21.88	H
5250.0	-46.51	5.11	3.00	13.26	-38.36	-13.00	25.36	H
3500.0	-48.97	4.02	3.00	12.21	-40.78	-13.00	27.78	V
5250.0	-48.76	5.11	3.00	13.26	-40.61	-13.00	27.61	V

LTE FDD Band 4 Channel Bandwidth 15MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.91	4.02	3.00	12.21	-34.72	-13.00	21.72	H
5242.5	-46.81	5.11	3.00	13.26	-38.66	-13.00	25.66	H
3495.0	-48.72	4.02	3.00	12.21	-40.53	-13.00	27.53	V
5242.5	-48.32	5.11	3.00	13.26	-40.17	-13.00	27.17	V



LTE FDD Band 4 Channel Bandwidth 20MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-43.36	4.02	3.00	12.21	-35.17	-13.00	22.17	H
5235.0	-46.57	5.11	3.00	13.26	-38.42	-13.00	25.42	H
3490.0	-48.98	4.02	3.00	12.21	-40.79	-13.00	27.79	V
5235.0	-47.89	5.11	3.00	13.26	-39.74	-13.00	26.74	V

Series Model No.: S24 Ultra

LTE FDD Band 4 Channel Bandwidth 1.4MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-43.32	4.02	3.00	12.21	-35.13	-13.00	22.13	H
5262.9	-47.21	5.11	3.00	13.26	-39.06	-13.00	26.06	H
3508.6	-49	4.02	3.00	12.21	-40.81	-13.00	27.81	V
5262.9	-48.53	5.11	3.00	13.26	-40.38	-13.00	27.38	V

LTE FDD Band 4 Channel Bandwidth 3MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-43.11	4.02	3.00	12.21	-34.92	-13.00	21.92	H
5260.5	-47.02	5.11	3.00	13.26	-38.87	-13.00	25.87	H
3507.0	-48.4	4.02	3.00	12.21	-40.21	-13.00	27.21	V
5260.5	-48.07	5.11	3.00	13.26	-39.92	-13.00	26.92	V

LTE FDD Band 4 Channel Bandwidth 5MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-42.9	4.02	3.00	12.21	-34.71	-13.00	21.71	H
5257.5	-46.44	5.11	3.00	13.26	-38.29	-13.00	25.29	H
3505.0	-49.13	4.02	3.00	12.21	-40.94	-13.00	27.94	V
5257.5	-48.06	5.11	3.00	13.26	-39.91	-13.00	26.91	V

LTE FDD Band 4 Channel Bandwidth 10MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-43.03	4.02	3.00	12.21	-34.84	-13.00	21.84	H
5250.0	-46.51	5.11	3.00	13.26	-38.36	-13.00	25.36	H
3500.0	-48.53	4.02	3.00	12.21	-40.34	-13.00	27.34	V
5250.0	-47.82	5.11	3.00	13.26	-39.67	-13.00	26.67	V

LTE FDD Band 4 Channel Bandwidth 15MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.65	4.02	3.00	12.21	-34.46	-13.00	21.46	H
5242.5	-46.49	5.11	3.00	13.26	-38.34	-13.00	25.34	H
3495.0	-48.9	4.02	3.00	12.21	-40.71	-13.00	27.71	V
5242.5	-48.04	5.11	3.00	13.26	-39.89	-13.00	26.89	V



LTE FDD Band 4 Channel Bandwidth 20MHz QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-42.41	4.02	3.00	12.21	-34.22	-13.00	21.22	H
5235.0	-46.85	5.11	3.00	13.26	-38.7	-13.00	25.7	H
3490.0	-49.17	4.02	3.00	12.21	-40.98	-13.00	27.98	V
5235.0	-48.73	5.11	3.00	13.26	-40.58	-13.00	27.58	V

LTE FDD Band 4 Channel Bandwidth 1.4MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3508.6	-43.07	4.02	3.00	12.21	-34.88	-13.00	21.88	H
5262.9	-46.93	5.11	3.00	13.26	-38.78	-13.00	25.78	H
3508.6	-48.38	4.02	3.00	12.21	-40.19	-13.00	27.19	V
5262.9	-47.83	5.11	3.00	13.26	-39.68	-13.00	26.68	V

LTE FDD Band 4 Channel Bandwidth 3MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3507.0	-42.47	4.02	3.00	12.21	-34.28	-13.00	21.28	H
5260.5	-46.96	5.11	3.00	13.26	-38.81	-13.00	25.81	H
3507.0	-48.74	4.02	3.00	12.21	-40.55	-13.00	27.55	V
5260.5	-48.35	5.11	3.00	13.26	-40.2	-13.00	27.2	V

LTE FDD Band 4 Channel Bandwidth 5MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.0	-43.31	4.02	3.00	12.21	-35.12	-13.00	22.12	H
5257.5	-46.87	5.11	3.00	13.26	-38.72	-13.00	25.72	H
3505.0	-49.22	4.02	3.00	12.21	-41.03	-13.00	28.03	V
5257.5	-48.73	5.11	3.00	13.26	-40.58	-13.00	27.58	V

LTE FDD Band 4 Channel Bandwidth 10MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3500.0	-42.71	4.02	3.00	12.21	-34.52	-13.00	21.52	H
5250.0	-46.67	5.11	3.00	13.26	-38.52	-13.00	25.52	H
3500.0	-48.99	4.02	3.00	12.21	-40.8	-13.00	27.8	V
5250.0	-48.34	5.11	3.00	13.26	-40.19	-13.00	27.19	V

LTE FDD Band 4 Channel Bandwidth 15MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3495.0	-42.51	4.02	3.00	12.21	-34.32	-13.00	21.32	H
5242.5	-46.38	5.11	3.00	13.26	-38.23	-13.00	25.23	H
3495.0	-49.03	4.02	3.00	12.21	-40.84	-13.00	27.84	V
5242.5	-48.55	5.11	3.00	13.26	-40.4	-13.00	27.4	V



LTE FDD Band 4 Channel Bandwidth 20MHz 16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.0	-42.97	4.02	3.00	12.21	-34.78	-13.00	21.78	H
5235.0	-47.24	5.11	3.00	13.26	-39.09	-13.00	26.09	H
3490.0	-48.53	4.02	3.00	12.21	-40.34	-13.00	27.34	V
5235.0	-48.32	5.11	3.00	13.26	-40.17	-13.00	27.17	V

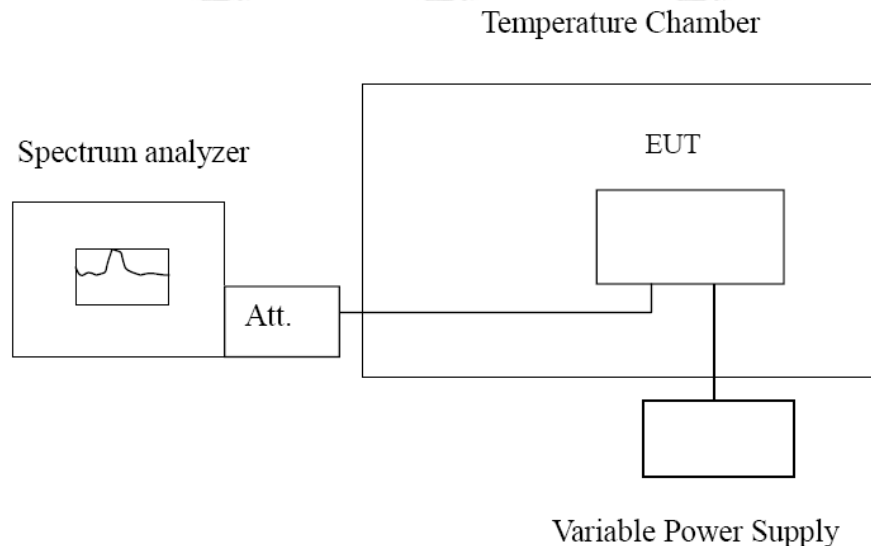


3.6 Frequency Stability Under Temperature & Voltage Variations

LIMIT

According to §27.54, §2.1055 requirement, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation and should not exceed 2.5ppm.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D.

Frequency Stability Under Temperature Variations:

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30°C.
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for LTE band 4, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C increments from +50°C to -30°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

**TEST RESULTS**

Remark:

1. We tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case.

LTE Band 4, 1.4MHz bandwidth, QPSK (worst case of all bandwidths).

LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
4.25	20	-16.08	-0.009400	PASS
5.0	20	-11.79	-0.006892	PASS
5.75	20	-18.30	-0.010697	PASS
5.0	-30	-17.27	-0.010095	PASS
5.0	-20	-12.03	-0.007032	PASS
5.0	-10	-16.08	-0.009400	PASS
5.0	0	12.35	0.007219	PASS
5.0	10	6.37	0.003724	PASS
5.0	20	-18.45	-0.010785	PASS
5.0	30	13.95	0.008155	PASS
5.0	40	-14.36	-0.008394	PASS
5.0	50	11.89	0.006950	PASS

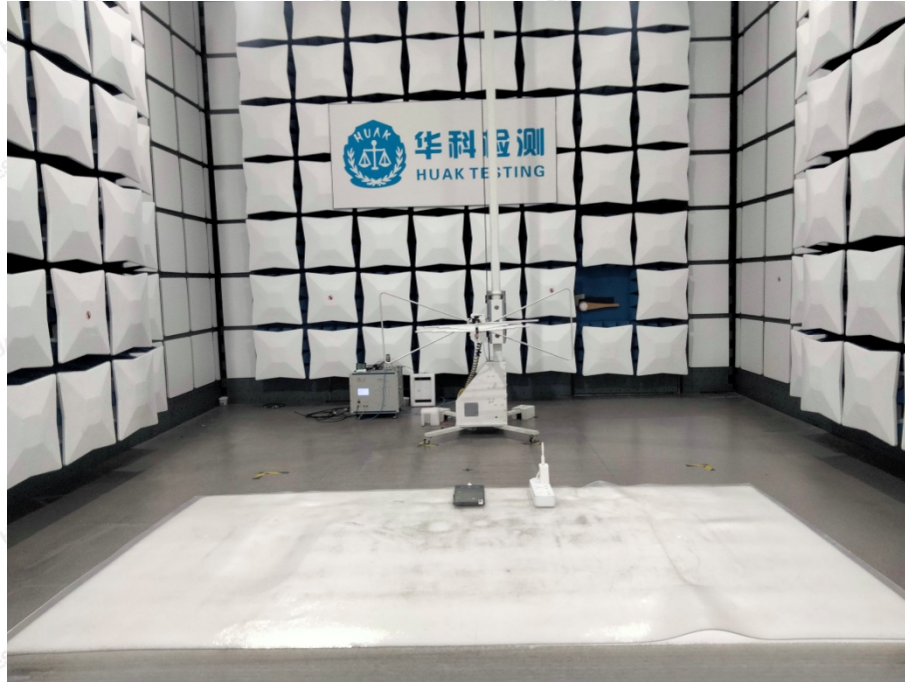
LTE Band 4, 1.4MHz bandwidth , 16QAM (worst case of all bandwidths)

LTE FDD Band 4				
DC Power(V)	Temperature (°C)	Frequency error(Hz)	Frequency error(ppm)	Verdict
4.25	20	-7.67	-0.004427	PASS
5.0	20	9.96	0.005749	PASS
5.75	20	-16.82	-0.009709	PASS
5.0	-30	-18.30	-0.010563	PASS
5.0	-20	-18.32	-0.010574	PASS
5.0	-10	7.61	0.004392	PASS
5.0	0	-12.89	-0.007440	PASS
5.0	10	4.53	0.002615	PASS
5.0	20	-24.68	-0.014245	PASS
5.0	30	6.48	0.003694	PASS
5.0	40	-18.53	-0.010563	PASS
5.0	50	-17.94	-0.010226	PASS



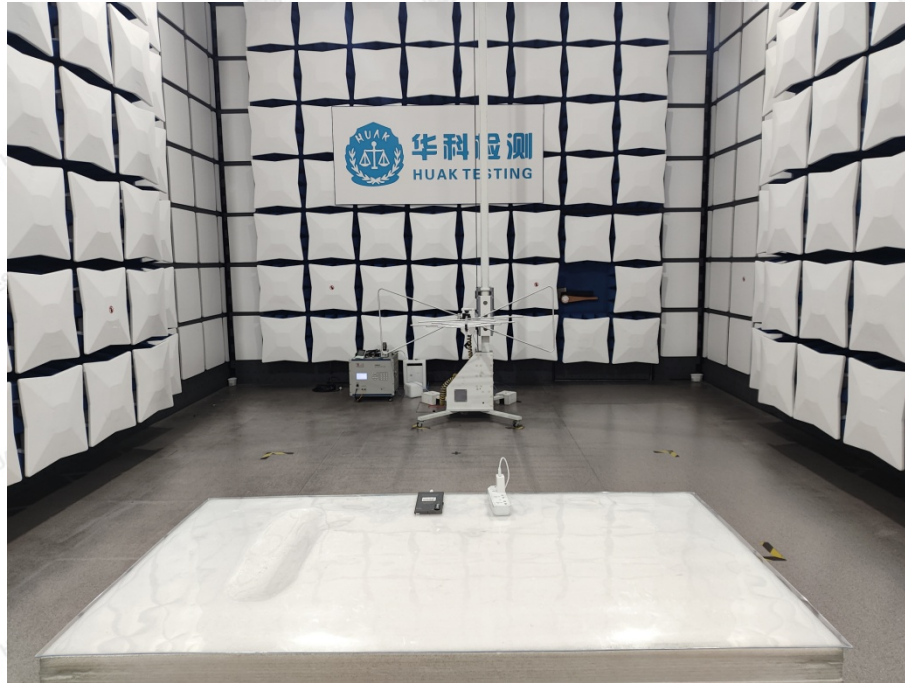
4 Test Setup Photos of the EUT

Test Model No.: S25 Ultra
Radiated Emissions





Series Model No.: X24 Ultra
Radiated Emissions



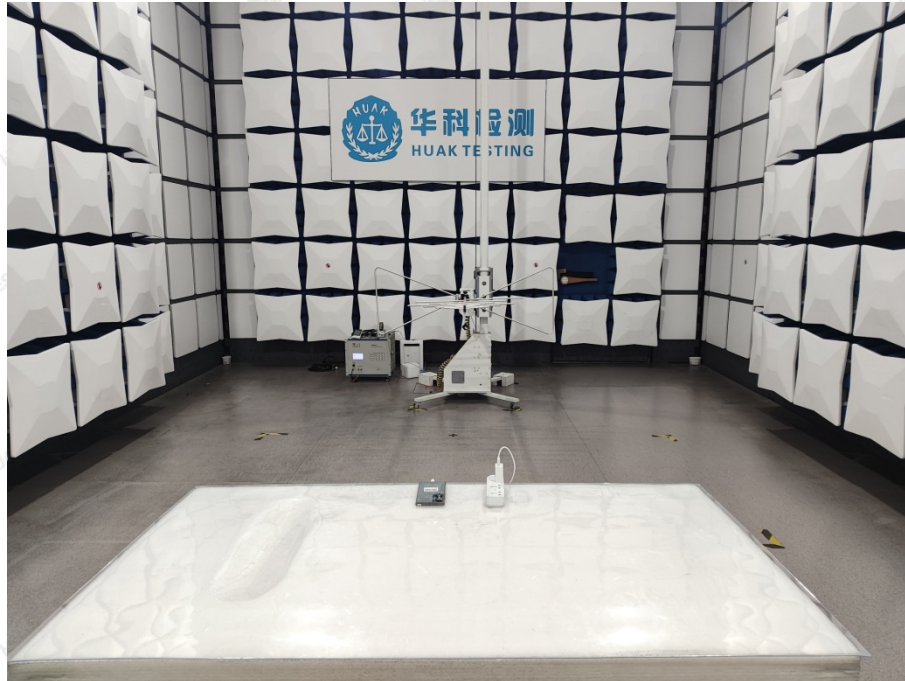
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Series Model No.: C24 Ultra
Radiated Emissions



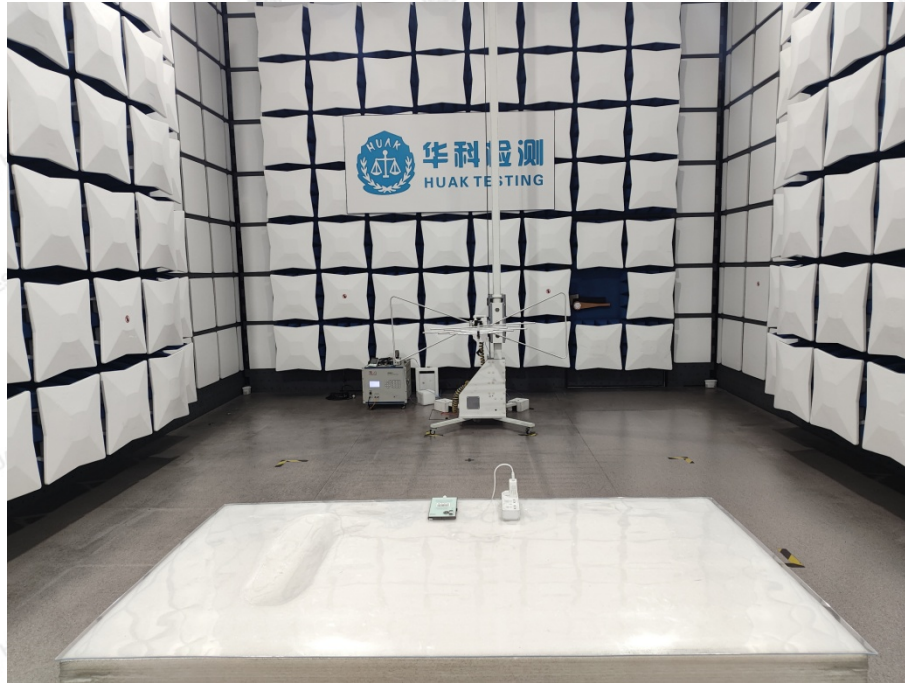
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Series Model No.: C25
Radiated Emissions



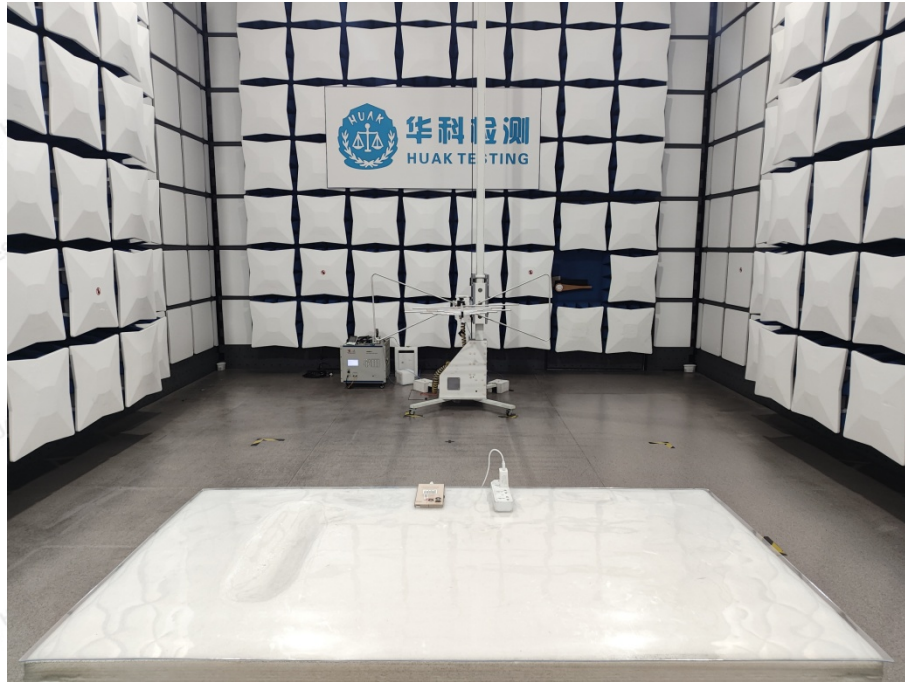
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Series Model No.: I15 Ultra
Radiated Emissions



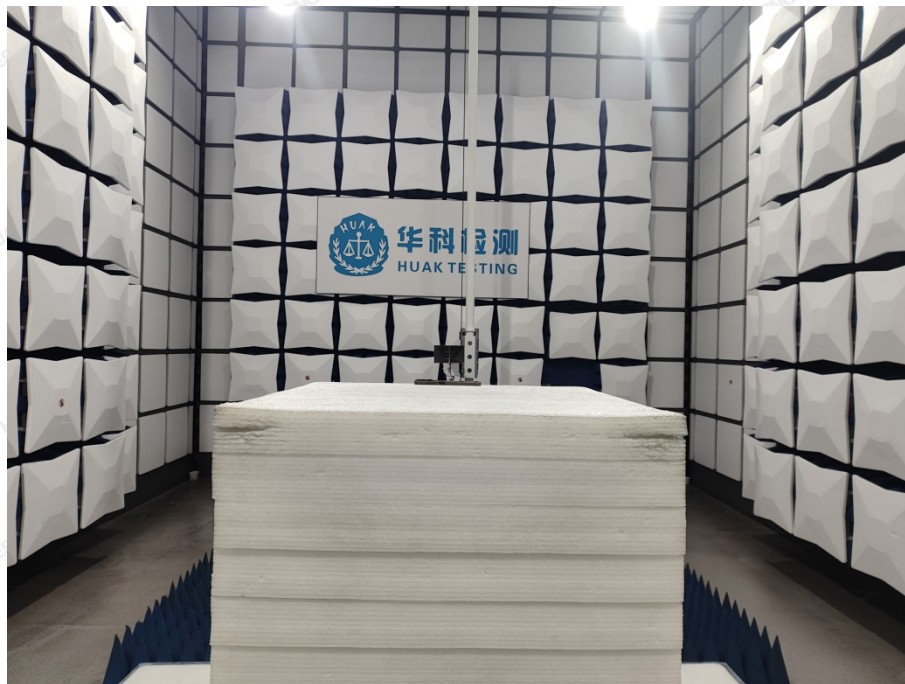
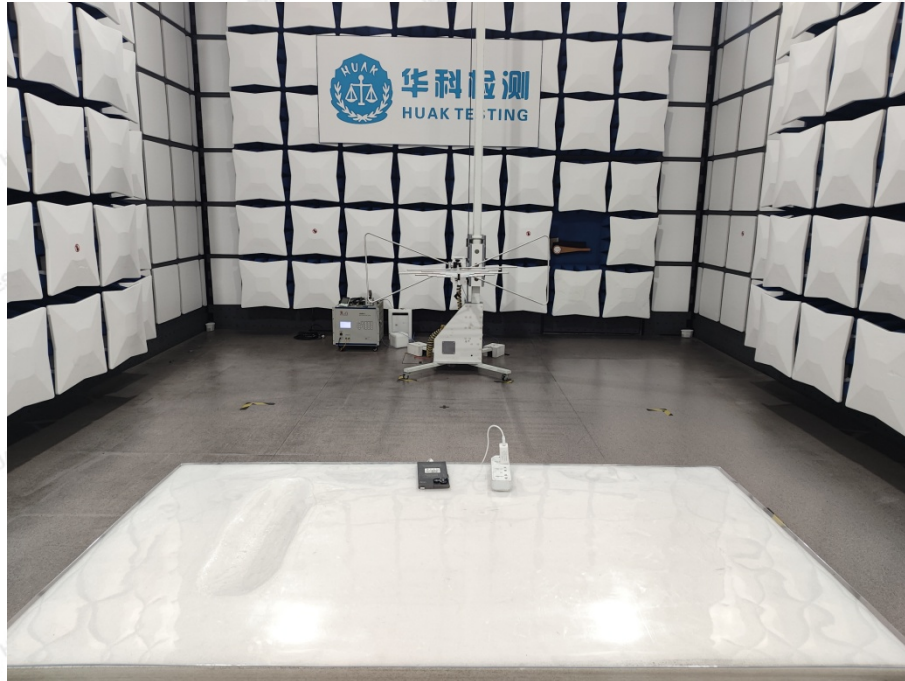
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Series Model No.: C7 Ultra
Radiated Emissions



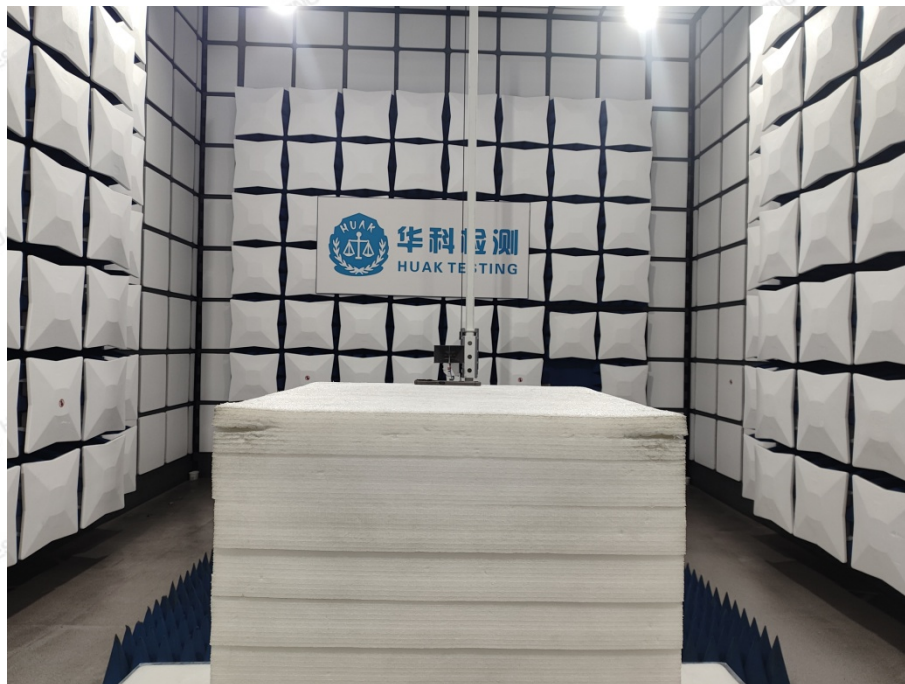
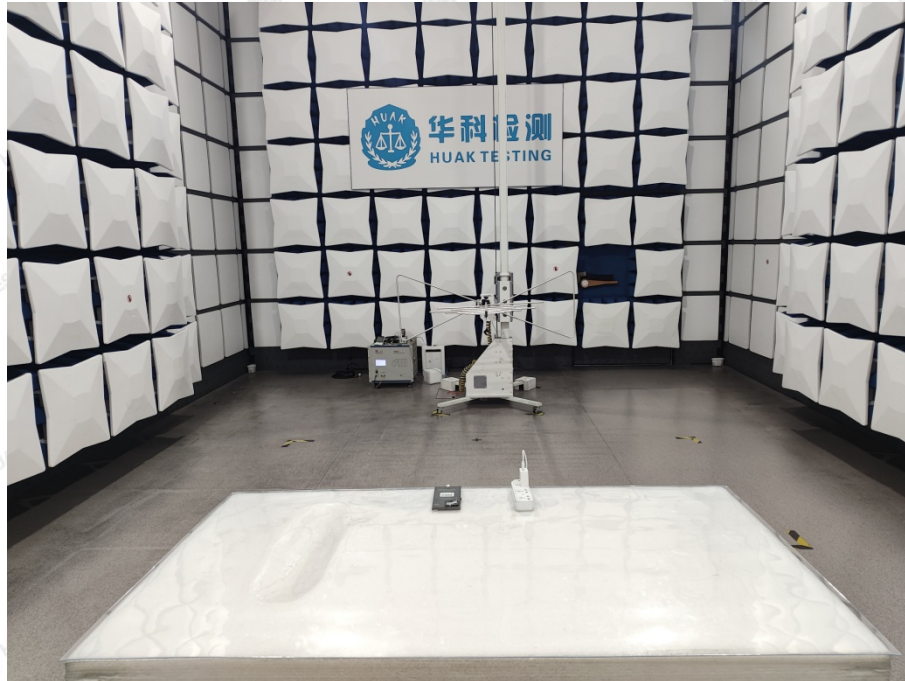
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Series Model No.: S24 Ultra
Radiated Emissions



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5 Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

.....End of Report.....