TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID.....:	2AEJARAYOX1	
Test Report No. .....:	TCT220921E021	
Date of issue .....:	Sep. 29, 2022	
Testing laboratory.....:	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name .....:	GSM GLOBE.COM INC	
Address .....:	8212 NW 30 TERRACE, DORAL Florida United States 33122	
Manufacturer's name ....:	GSM GLOBE.COM INC	
Address .....:	8212 NW 30 TERRACE, DORAL Florida United States 33122	
Standard(s).....:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24	
Product Name .....:	Mobile Phone	
Trade Mark.....:	RAYO MOVIL	
Model/Type reference .....:	RAYO X1	
Rating(s) .....:	DC 5V from adapter	
Date of receipt of test item .....:	Sep. 21, 2022	
Date (s) of performance of test .....:	Aug. 31, 2022 ~ Sep. 29, 2022	
Tested by (+signature)....:	Brews XU	
Check by (+signature) ....:	Beryl ZHAO	
Approved by (+signature):	Tomsin	

General disclaimer:

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. General Product Information

1.1. EUT description

Product Name.....:	Mobile Phone
Model/Type reference.....:	RAYO X1
Sample Number.....:	TCT220921E021-0101
3G Version .....:	WCDMA: R99 HSDPA: Release 5 HSUPA: Release 6
Tx Frequency.....:	GSM/GPRS 850: 824.2MHz ~ 848.8MHz GSM/GPRS 1900: 1850.2MHz ~ 1909.8MHz WCDMA Band V: 826.4MHz ~ 846.6MHz WCDMA Band II: 1852.4MHz ~ 1907.6MHz
Rx Frequency .....:	GSM/GPRS 850: 869.2MHz ~ 893.8MHz GSM/GPRS 1900: 1930.2MHz ~ 1989.8MHz WCDMA Band V: 871.4MHz ~ 891.6MHz WCDMA Band II: 1932.4MHz ~ 1987.6MHz
Maximum Output Power to Antenna.....:	GSM/GPRS 850: 31.84dBm GSM/GPRS 1900: 30.51 dBm WCDMA/HSDPA/HSUPA Band 2: 21.56 dBm WCDMA/HSDPA/HSUPA Band 5: 21.61 dBm
99% Occupied Bandwidth.....:	GSM/GPRS850 Class 8: 251KGXW GPRS1900 Class 8: 255KGXW WCDMA Band V RMC 12.2Kbps: 4M17F9W WCDMA Band II RMC 12.2Kbps: 4M19F9W
Type of Modulation.....:	GSM/GPRS: GMSK WCDMA/HSDPA/HSUPA: QPSK
Antenna Type.....:	PIFA Antenna
Antenna Gain.....:	GSM/GPRS 850: -2.12dBi GPRS 1900: 0.46dBi WCDMA Band V: -2.1dBi WCDMA Band II: 0.41dBi
Rating(s).....:	DC 5V from adapter

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

None.

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1.3. Operation Frequency

GSM 850		PCS1900	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
….	….	….	….
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
…	…	…	…
250	848.60	809	1909.60
251	848.80	810	1909.80

WCDMA Band V		WCDMA Band II	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
4132	826.40	9262	1852.40
4133	826.60	9263	1852.60
….	….	….	….
4182	836.40	9399	1879.80
4183	836.60	9400	1880.00
4184	836.80	9401	1880.20
…	…	…	…
4233	846.60	9538	1907.60

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2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§22.913; §2.1046 §24.232	PASS
Peak-to-Average Ratio	§2.1046; §24.232(d) §22.913	PASS
Effective Radiated Power	§2.1046; §22.913(a) §24.232	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913(a) §24.232	PASS
Occupied Bandwidth	§2.1049	PASS
Band Edge	§2.1051; §22.917(a) §24.238(a)	PASS
Conducted Spurious Emission	§2.1051; §22.917 §24.238;	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a) §24.238;	PASS
Frequency Stability for Temperature & Voltage	§2.1055;§22.355 §24.235;	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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3. General Information

3.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Remark: This product has a built-in rechargeable battery, so in an independent test, the EUT battery was fully-charged. This EUT owns two SIM cards, after we perform the pretest for these two SIM card; we found the SIM 1 is the worst case, so its result is recorded in this report.	

Keep the EUT in communication with CMU200 and select channel with modulation
All modes and data rates and positions were investigated.
Test modes are chosen to be reported as the worst case configuration below:

Test Mode		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	GPRS class 12 Link	GPRS class 12 Link
PCS 1900	GPRS class 12 Link	GPRS class 12 Link
WCDMA Band V	RMC 12.2Kbps Link	RMC 12.2Kbps Link
WCDM Band II	RMC 12.2Kbps Link	RMC 12.2Kbps Link

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power. Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarization. The emissions worst-case (Z axis)are shown in Test Results of the following pages.

3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

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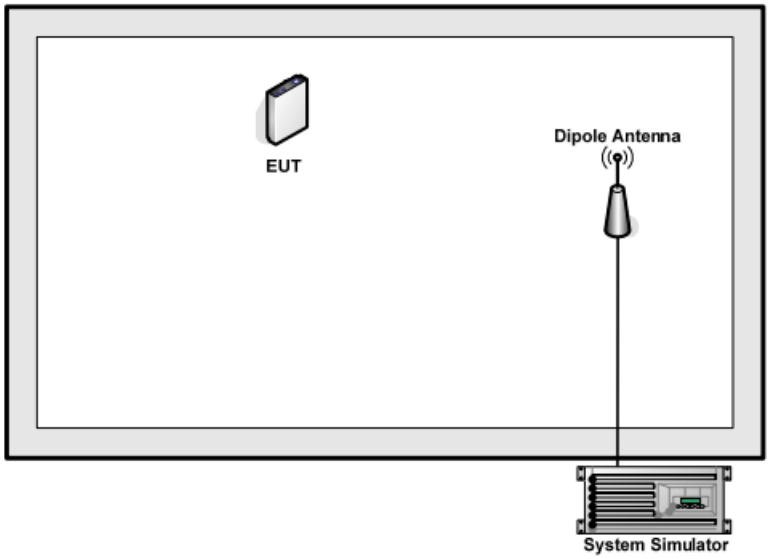
3.3. Configuration of Tested System



3.4. Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level. The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 3 dB and a 5dB attenuator.

Example: *Offset (dB) = RF cable loss (dB) + attenuator factor (dB).*

= 8(dB)

4. Facilities and Accreditations

4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

  SHENZHEN TONGCE TESTING LAB

  Designation Number: CN1205

  The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  SHENZHEN TONGCE TESTING LAB

  CAB identifier: CN0031

  The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4.3. Measurement Uncertainty

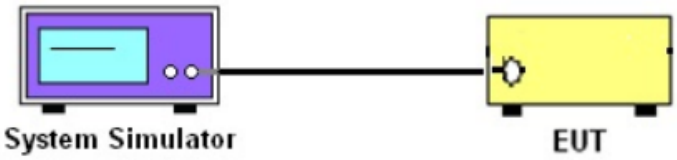
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	All emissions, radiated(<1 GHz)	± 4.56 dB
5	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
6	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB
7	Temperature	± 0.1°C
8	Humidity	± 1.0%

5. Test Results and Measurement Data

5.1. Conducted Output Power Measurement

5.1.1. Test Specification

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(b) FCC part 27.50(d);
Test Method:	FCC KDB 971168 D01 v03r01
Operation mode:	Refer to item 3.1
Limits:	GSM 850: 7W PCS 1900: 2W WCDMA Band V:7W WCDMA Band II: 2W
Test Setup:	
Test Procedure:	1. The transmitter output port was connected to the system simulator. 2. Set EUT at maximum power through system simulator. 3. Select lowest, middle, and highest channels for each band and different modulation. 4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.
Test Result:	PASS

5.1.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	110188	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/

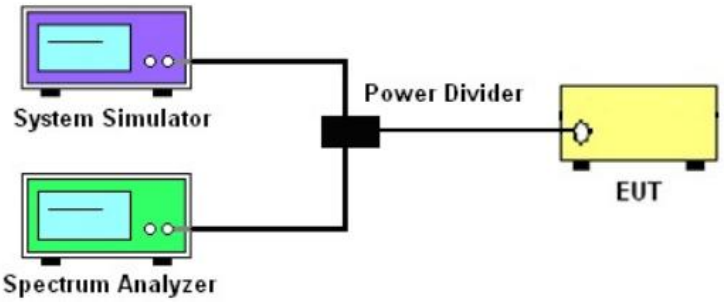
5.1.3. Test data

Conducted Power Measurement Results:

Please refer the appendix of test data

5.2. Peak to Average Ratio

5.2.1. Test Specification

Test Requirement:	FCC part 24.232(d) ; FCC part 22.913; FCC part 27.50(d);
Test Method:	ANSI C63.26:2013
Operation mode:	Refer to item 3.1
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 5.7.1. 2. The EUT was connected to spectrum analyzer and system simulator via a power divider. 3. Set EUT to transmit at maximum output power. 4. For GSM/EGPRS operating modes, signal gating is implemented on the spectrum analyzer by triggering from the system simulator. 5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.
Test Result:	PASS

5.2.2. Test Instruments

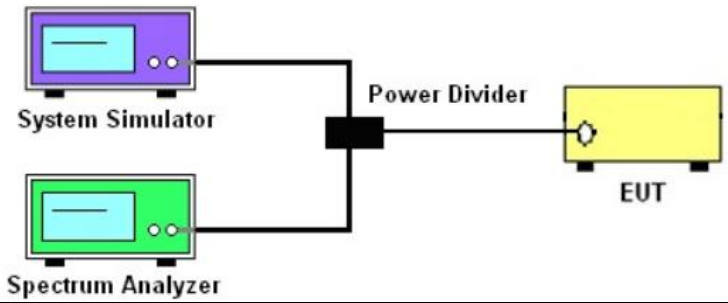
Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	110188	Jul. 04, 2023
Spectrum Analyzer	R&S	FSU	200054	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/

5.2.3. Test Data

Please refer the appendix of test data

5.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

5.3.1. Test Specification

Test Requirement:	FCC part 2.1049
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	N/A
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 4.2. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold. 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.
Test Result:	PASS

5.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	110188	Jul. 04, 2023
Spectrum Analyzer	R&S	FSU	200054	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/

5.3.3. Test Data

Please refer the appendix of test data

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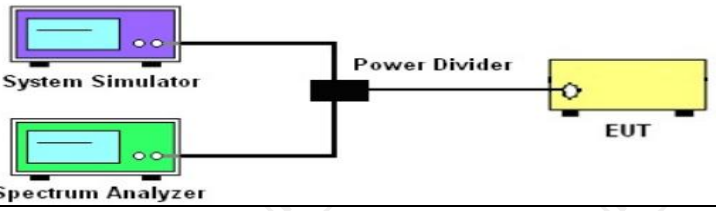
5.4. Band Edge and Conducted Spurious Emission Measurement

5.4.1. Test Specification

Test Requirement:	FCC part22.917(a) and FCC part24.238(a) FCC part27.53(g)
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	-13dBm
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 6.0. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The band edges of low and high channels for the highest RF powers were measured. 5. The conducted spurious emission for the whole frequency range was taken. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts) = P(W) - [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
Test Result:	PASS

5.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	110188	Jul. 04, 2023
Spectrum Analyzer	R&S	FSU	200054	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/

5.4.3. Test Data

Please refer the appendix of test data

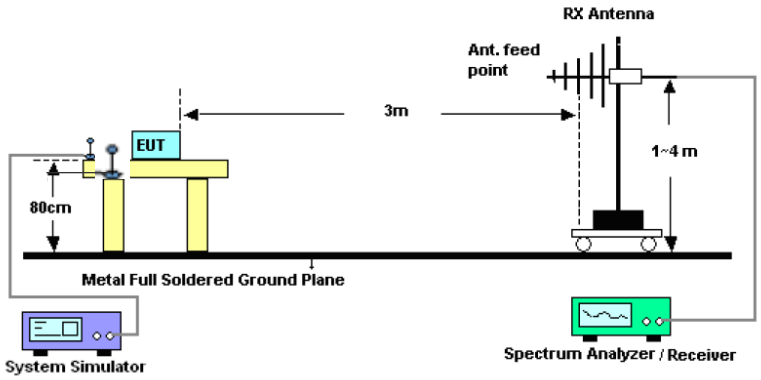
5.5. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

5.5.1. Test Specification

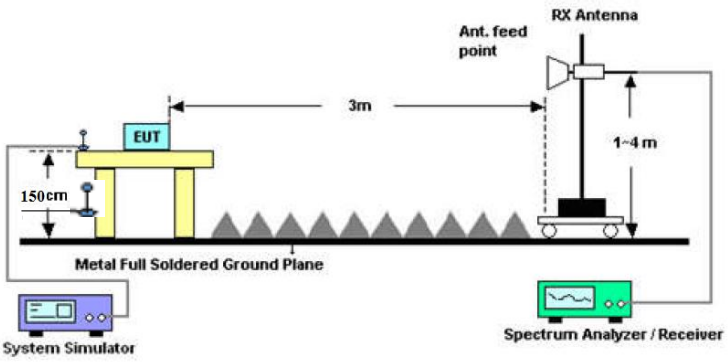
Test Requirement:	FCC part 22.913(a) and FCC part 24.232(c) FCC part 27.50(d)
Test Method:	FCC KDB 971168 D01v03r01
Receiver Setup:	

	GSM/GPRS/EDGE	WCDMA/HSPA
SPAN	500kHz	10MHz
RBW	10kHz	100kHz
VBW	30kHz	300kHz
Detector	RMS	RMS
Trace	Average	Average
Average Type	Power	Power
Sweep Count	100	100

Limit:	GSM850: 7W ERP PCS1900: 2W EIRP WCDMA Band V: 7W ERP WCDMA Band II: 2W EIRP WCDMA Band IV: 1W EIRP
Test Setup：	From 30MHz to 1GHz



Above 1GHz



Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 5.8. and ANSI / TIA-603-D-2010 Section 2.2.17. 2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01v03. 3. Key the transmitter, then rotate the EUT 360^{o} azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. 4. Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the center of the antenna under test. 5. Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading. LOSS = Generator Output Power (dBm) – Analyzer reading (dBm) 6. Determine the effective radiated output power at each angular position from the readings in steps 3) and 5) using the following equation: ERP (dBm) = LVL (dBm) + LOSS (dB) 7. The maximum ERP is the maximum value determined in the preceding step. 8. Calculating ERP: ERP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd) Antenna Gain (dBd) = Antenna Gain (dBi) - 2.15 EIRP = ERP + 2.15
Test results:	PASS

5.5.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Universal Radio Communication Tester	R&S	CMU200	110188	Jul. 04, 2023
Spectrum Analyzer	R&S	FSQ40	200061	Jul. 03, 2023
Signal Generator	HP	83623B	3614A00396	Feb. 24, 2023
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 05, 2024
Broadband Antenna	Schwarzbeck	VULB9163	412	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Apr. 10, 2023
Coaxial cable	SKET	RC-18G-N-M	/	Feb. 24, 2024
Coaxial cable	SKET	RC_40G-K-M	/	Feb. 24, 2024
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	Shurple Technology	EZ-EMC	/	/

5.5.3. Test Data

Please refer the appendix of test data

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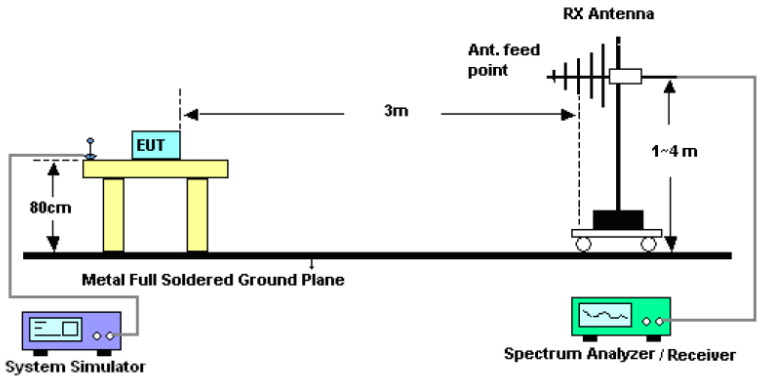
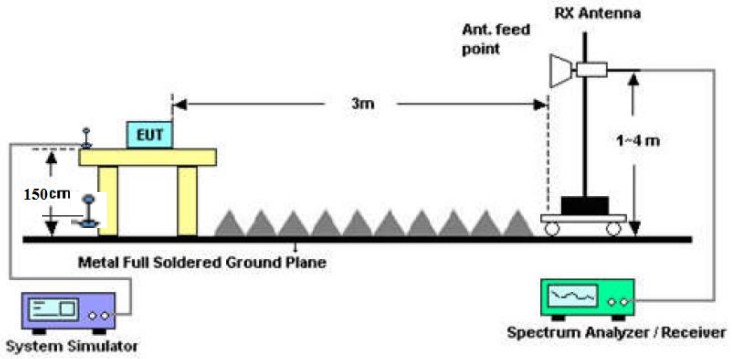
5.6. Field Strength of Spurious Radiation Measurement

5.6.1. Test Specification

Test Requirement:	FCC part 22.917(a) and FCC part 24.238(a) FCC part 27.53(g)
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	-13dBm
Test setup:	For 30MHz~1GHz  Above 1GHz 
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 6 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations. 6. Make the measurement with the spectrum analyzer's

	RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission. 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission. 9. Taking the record of output power at antenna port. 10. Repeat step 7 to step 8 for another polarization. 11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain 12. ERP (dBm) = EIRP - 2.15 13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts) = P(W) - [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
Test results:	PASS
Remark:	All modulations have been tested, but only the worst modulation show in this test item.

5.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Universal Radio Communication Tester	R&S	CMU200	110188	Jul. 04, 2023
Spectrum Analyzer	R&S	FSQ40	200061	Jul. 03, 2023
Signal Generator	HP	83623B	3614A00396	Feb. 24, 2023
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 05, 2024
Broadband Antenna	Schwarzbeck	VULB9163	412	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Apr. 10, 2023
Coaxial cable	SKET	RC-18G-N-M	/	Feb. 24, 2024
Coaxial cable	SKET	RC_40G-K-M	/	Feb. 24, 2024
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	Shurple Technology	EZ-EMC	/	/

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5.6.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss+Antenna factor-Amp factor*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

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Band	GSM 850	Test channel:	Lowest
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM850 CH-L	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1648.400	-34.29	-20.31	-54.60	-13.00	-41.60	peak	P
2	2472.600	-29.62	-21.41	-51.03	-13.00	-38.03	peak	P
3 *	3296.800	-26.79	-21.14	-47.93	-13.00	-34.93	peak	P
4	4121.000	-26.61	-21.62	-48.23	-13.00	-35.23	peak	P

Channel:	GSM850 CH-L	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1648.400	-23.29	-30.31	-53.60	-13.00	-40.60	peak	P
2	2472.600	-18.12	-31.41	-49.53	-13.00	-36.53	peak	P
3 *	3296.800	-15.29	-31.14	-46.43	-13.00	-33.43	peak	P
4	4121.000	-15.61	-31.62	-47.23	-13.00	-34.23	peak	P

Band	GSM 850	Test channel:	Middle
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM850 CH-M	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1673.200	-33.79	-20.30	-54.09	-13.00	-41.09	peak	P
2	2509.800	-29.77	-21.39	-51.16	-13.00	-38.16	peak	P
3 *	3346.400	-24.96	-21.18	-46.14	-13.00	-33.14	peak	P
4	4183.000	-26.25	-21.64	-47.89	-13.00	-34.89	peak	P

Channel:	GSM850 CH-M	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1673.200	-23.29	-30.30	-53.59	-13.00	-40.59	peak	P
2	2509.800	-19.27	-31.39	-50.66	-13.00	-37.66	peak	P
3 *	3346.400	-14.96	-31.18	-46.14	-13.00	-33.14	peak	P
4	4183.000	-15.75	-31.64	-47.39	-13.00	-34.39	peak	P

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Band	GSM 850	Test channel:	Highest
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM850 CH-H	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1697.600	-35.19	-20.28	-55.47	-13.00	-42.47	peak	P
2	2546.400	-29.65	-21.35	-51.00	-13.00	-38.00	peak	P
3 *	3395.200	-26.18	-21.22	-47.40	-13.00	-34.40	peak	P
4	4244.000	-26.88	-21.65	-48.53	-13.00	-35.53	peak	P

Channel:	GSM850 CH-H	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1697.600	-23.69	-30.28	-53.97	-13.00	-40.97	peak	P
2	2546.400	-18.15	-31.35	-49.50	-13.00	-36.50	peak	P
3 *	3395.200	-15.18	-31.22	-46.40	-13.00	-33.40	peak	P
4	4244.000	-16.38	-31.65	-48.03	-13.00	-35.03	peak	P

Band	PCS 1900	Test channel:	Lowest
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM1900 CH-L	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3700.400	-27.72	-21.42	-49.14	-13.00	-36.14	peak	P
2	5550.600	-22.56	-22.87	-45.43	-13.00	-32.43	peak	P
3	7400.800	-21.65	-23.32	-44.97	-13.00	-31.97	peak	P
4 *	9251.000	-16.51	-23.31	-39.82	-13.00	-26.82	peak	P

Channel:	GSM1900 CH-L	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3700.400	-16.22	-31.42	-47.64	-13.00	-34.64	peak	P
2	5550.600	-10.56	-32.87	-43.43	-13.00	-30.43	peak	P
3	7400.800	-10.65	-33.32	-43.97	-13.00	-30.97	peak	P
4 *	9251.000	-6.01	-33.31	-39.32	-13.00	-26.32	peak	P

Band	PCS 1900	Test channel:	Middle
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM1900 CH-M	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3760.000	-25.34	-21.46	-46.80	-13.00	-33.80	peak	P
2	5640.000	-23.27	-22.64	-45.91	-13.00	-32.91	peak	P
3	7520.000	-19.49	-23.40	-42.89	-13.00	-29.89	peak	P
4 *	9400.000	-18.13	-23.05	-41.18	-13.00	-28.18	peak	P

Channel:	GSM1900 CH-M	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3760.000	-14.34	-31.46	-45.80	-13.00	-32.80	peak	P
2	5640.000	-11.27	-32.64	-43.91	-13.00	-30.91	peak	P
3	7520.000	-7.99	-33.40	-41.39	-13.00	-28.39	peak	P
4 *	9400.000	-7.13	-33.05	-40.18	-13.00	-27.18	peak	P

Band	PCS 1900	Test channel:	Highest
Test mode:		Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	GSM1900 CH-H	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3819.600	-25.78	-21.49	-47.27	-13.00	-34.27	peak	P
2	5729.400	-21.42	-22.40	-43.82	-13.00	-30.82	peak	P
3	7639.200	-18.64	-23.64	-42.28	-13.00	-29.28	peak	P
4 *	9549.000	-15.56	-23.00	-38.56	-13.00	-25.56	peak	P

Channel:	GSM1900 CH-H	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3819.600	-16.78	-31.49	-48.27	-13.00	-35.27	peak	P
2	5729.400	-12.92	-32.40	-45.32	-13.00	-32.32	peak	P
3	7639.200	-9.64	-33.64	-43.28	-13.00	-30.28	peak	P
4 *	9549.000	-6.06	-33.00	-39.06	-13.00	-26.06	peak	P

Band	WCDMA Band V	Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 5 CH-L	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1652.800	-33.62	-20.31	-53.93	-13.00	-40.93	peak	P
2	2479.200	-29.82	-21.41	-51.23	-13.00	-38.23	peak	P
3	3305.600	-27.48	-21.15	-48.63	-13.00	-35.63	peak	P
4 *	4132.000	-26.41	-21.63	-48.04	-13.00	-35.04	peak	P

Channel:	WCDMA Band 5 CH-L	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1652.800	-23.12	-30.31	-53.43	-13.00	-40.43	peak	P
2	2479.200	-19.32	-31.41	-50.73	-13.00	-37.73	peak	P
3	3305.600	-16.48	-31.15	-47.63	-13.00	-34.63	peak	P
4 *	4132.000	-15.91	-31.63	-47.54	-13.00	-34.54	peak	P

Band	WCDMA Band V	Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 5 CH-M	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1672.800	-34.32	-20.30	-54.62	-13.00	-41.62	peak	P
2	2509.200	-29.90	-21.39	-51.29	-13.00	-38.29	peak	P
3 *	3345.600	-26.09	-21.18	-47.27	-13.00	-34.27	peak	P
4	4182.000	-26.24	-21.64	-47.88	-13.00	-34.88	peak	P

Channel:	WCDMA Band 5 CH-M	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1672.800	-23.32	-30.30	-53.62	-13.00	-40.62	peak	P
2	2509.200	-18.90	-31.39	-50.29	-13.00	-37.29	peak	P
3 *	3345.600	-16.09	-31.18	-47.27	-13.00	-34.27	peak	P
4	4182.000	-15.74	-31.64	-47.38	-13.00	-34.38	peak	P

Band	WCDMA Band V	Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 5 CH-H	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1693.200	-24.13	-30.28	-54.41	-13.00	-41.41	peak	P
2	2539.800	-18.79	-31.36	-50.15	-13.00	-37.15	peak	P
3 *	3386.400	-16.60	-31.21	-47.81	-13.00	-34.81	peak	P
4	4233.000	-16.97	-31.65	-48.62	-13.00	-35.62	peak	P

Channel:	WCDMA Band 5 CH-H	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1693.200	-23.63	-30.28	-53.91	-13.00	-40.91	peak	P
2	2539.800	-17.29	-31.36	-48.65	-13.00	-35.65	peak	P
3 *	3386.400	-15.10	-31.21	-46.31	-13.00	-33.31	peak	P
4	4233.000	-15.47	-31.65	-47.12	-13.00	-34.12	peak	P

Band	WCDMA Band II	Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 2 CH-L	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3704.800	-26.39	-21.42	-47.81	-13.00	-34.81	peak	P
2	5557.200	-22.52	-22.85	-45.37	-13.00	-32.37	peak	P
3	7409.600	-20.02	-23.32	-43.34	-13.00	-30.34	peak	P
4 *	9262.000	-17.49	-23.29	-40.78	-13.00	-27.78	peak	P

Channel:	WCDMA Band 2 CH-L	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3704.800	-15.39	-31.42	-46.81	-13.00	-33.81	peak	P
2	5557.200	-11.52	-32.85	-44.37	-13.00	-31.37	peak	P
3	7409.600	-9.02	-33.32	-42.34	-13.00	-29.34	peak	P
4 *	9262.000	-6.49	-33.29	-39.78	-13.00	-26.78	peak	P

Band	WCDMA Band II	Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 2 CH-M	Polarization:	Horizontal

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3760.000	-25.83	-21.46	-47.29	-13.00	-34.29	peak	P
2	5640.000	-23.27	-22.64	-45.91	-13.00	-32.91	peak	P
3	7520.000	-19.65	-23.40	-43.05	-13.00	-30.05	peak	P
4 *	9400.000	-17.61	-23.05	-40.66	-13.00	-27.66	peak	P

Channel:	WCDMA Band 2 CH-M	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3760.000	-13.83	-31.46	-45.29	-13.00	-32.29	peak	P
2	5640.000	-10.27	-32.64	-42.91	-13.00	-29.91	peak	P
3	7520.000	-8.65	-33.40	-42.05	-13.00	-29.05	peak	P
4 *	9400.000	-6.61	-33.05	-39.66	-13.00	-26.66	peak	P

Band	WCDMA Band II	Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)	Temperature :	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Channel:	WCDMA Band 2 CH-H	Polarization:	Horizontal

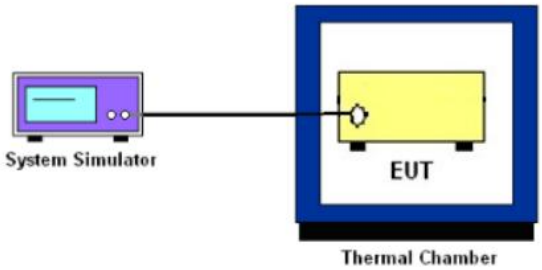
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3815.200	-25.64	-21.49	-47.13	-13.00	-34.13	peak	P
2	5722.800	-20.74	-22.42	-43.16	-13.00	-30.16	peak	P
3	7630.400	-19.00	-23.62	-42.62	-13.00	-29.62	peak	P
4 *	9538.000	-15.12	-22.97	-38.09	-13.00	-25.09	peak	P

Channel:	WCDMA Band 2 CH-H	Polarization:	Vertical

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	3815.200	-14.64	-31.49	-46.13	-13.00	-33.13	peak	P
2	5722.800	-11.74	-32.42	-44.16	-13.00	-31.16	peak	P
3	7630.400	-8.50	-33.62	-42.12	-13.00	-29.12	peak	P
4 *	9538.000	-6.62	-32.97	-39.59	-13.00	-26.59	peak	P

5.7. Frequency Stability Measurement

5.7.1. Test Specification

Test Requirement:	FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235 FCC Part 27.54
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	FCC Part 22.355 : ±2.5 ppm FCC Part 24.235 : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
Test Setup:	
Test Procedure:	**Test Procedures for Temperature Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. **Test Procedures for Voltage Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

5.7.2. Test Instruments

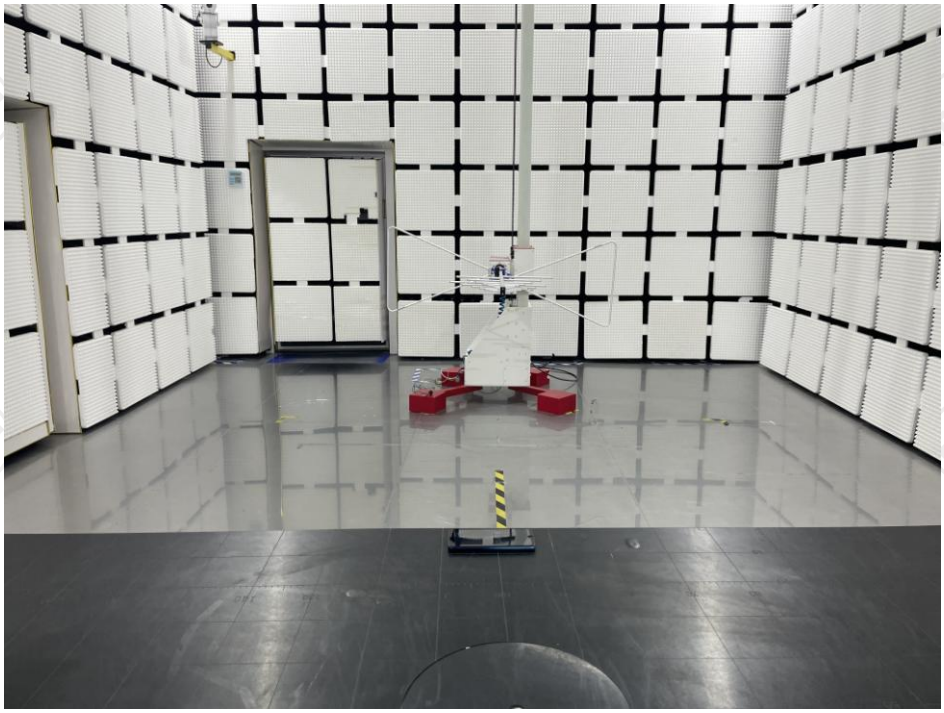
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Universal Radio Communication Tester	R&S	CMU200	110188	Jul. 04, 2023
Programable tempratuce and humidity chamber	JQ	JQ-2000	/	Jul. 04, 2023
DC power supply	Kingrang	KR3005K	/	Jul. 04, 2023
Combiner Box	AT890-RFB	Ascentest	/	/

5.7.3. Test Data

Plese refer the appendix of test data

Appendix A: Photographs of Test Setup

Radiated Emission



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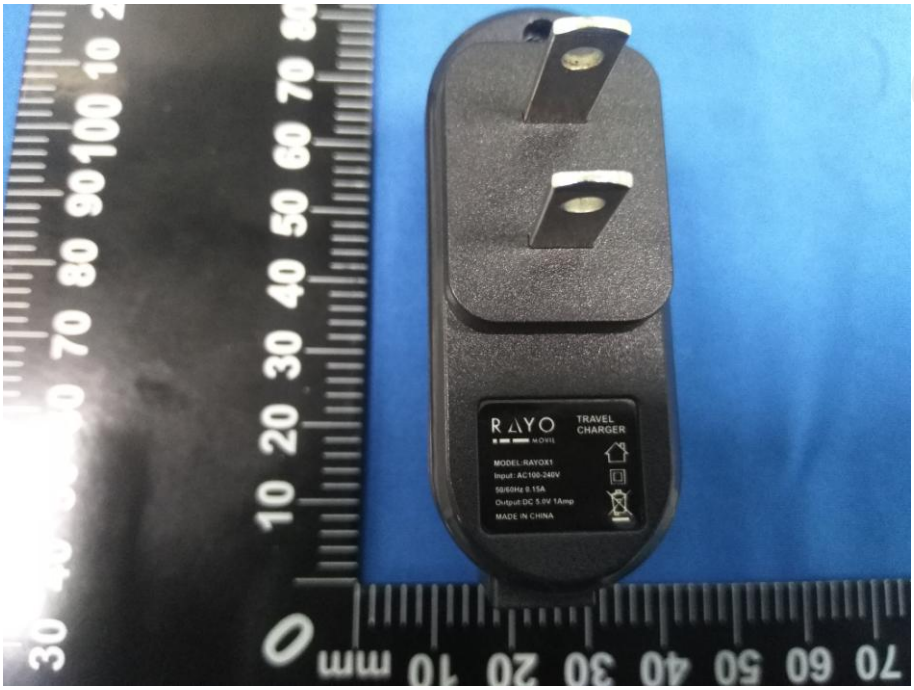
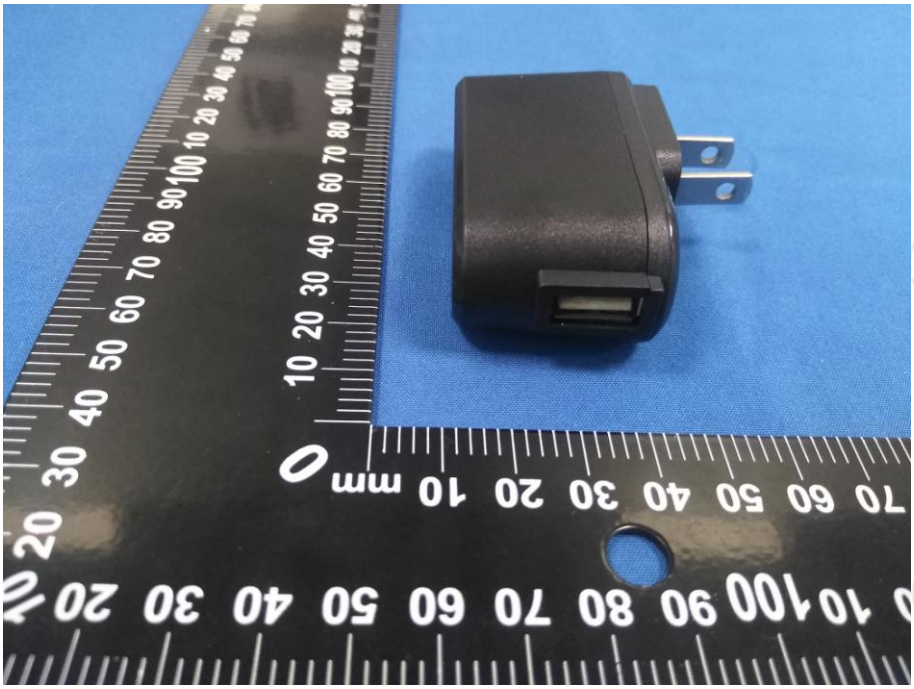
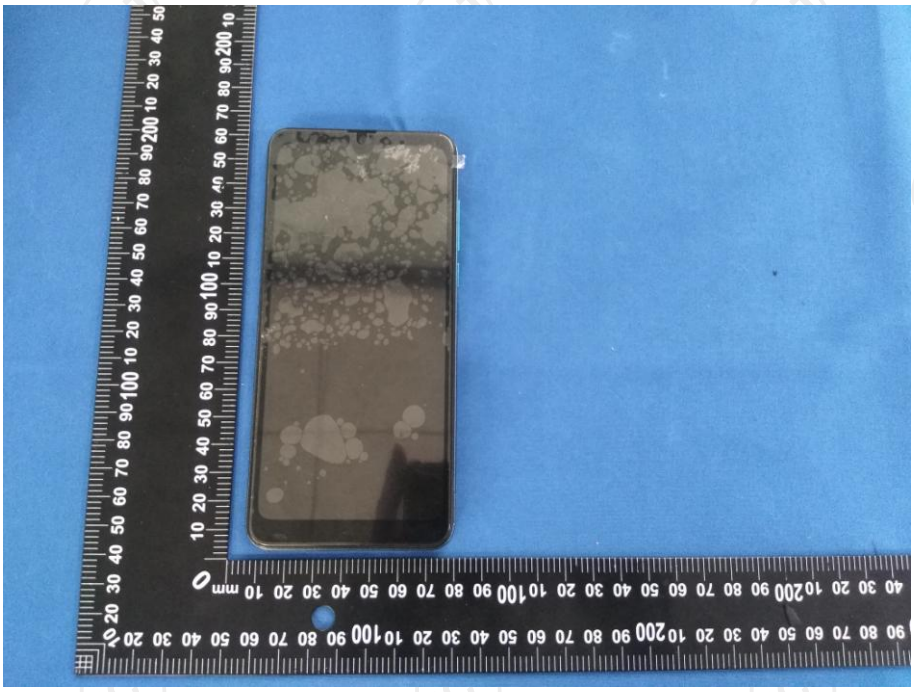
Appendix B: Photographs of EUT

External Photos







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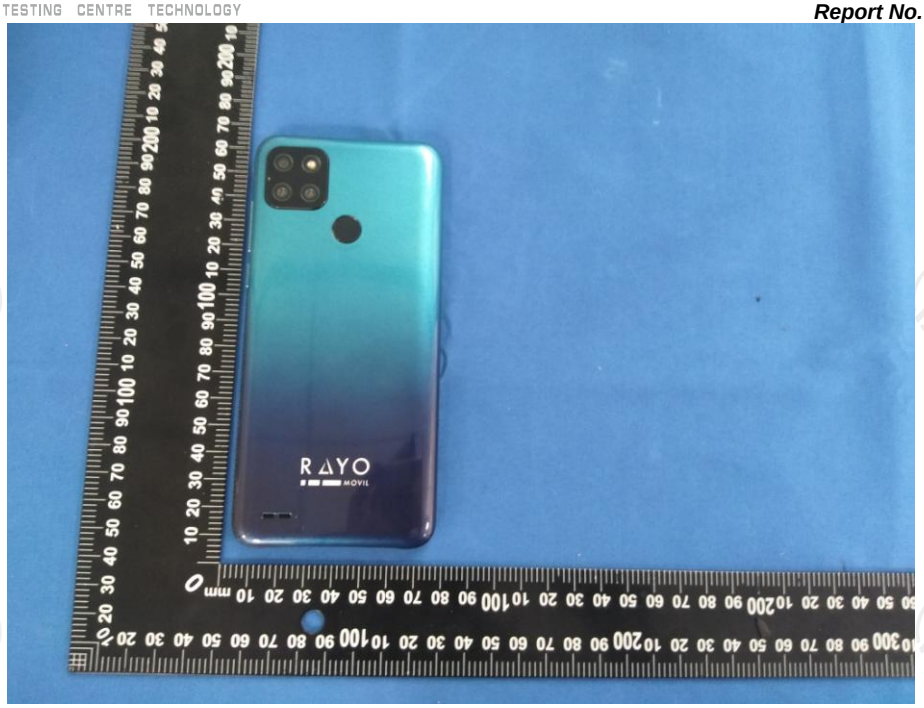
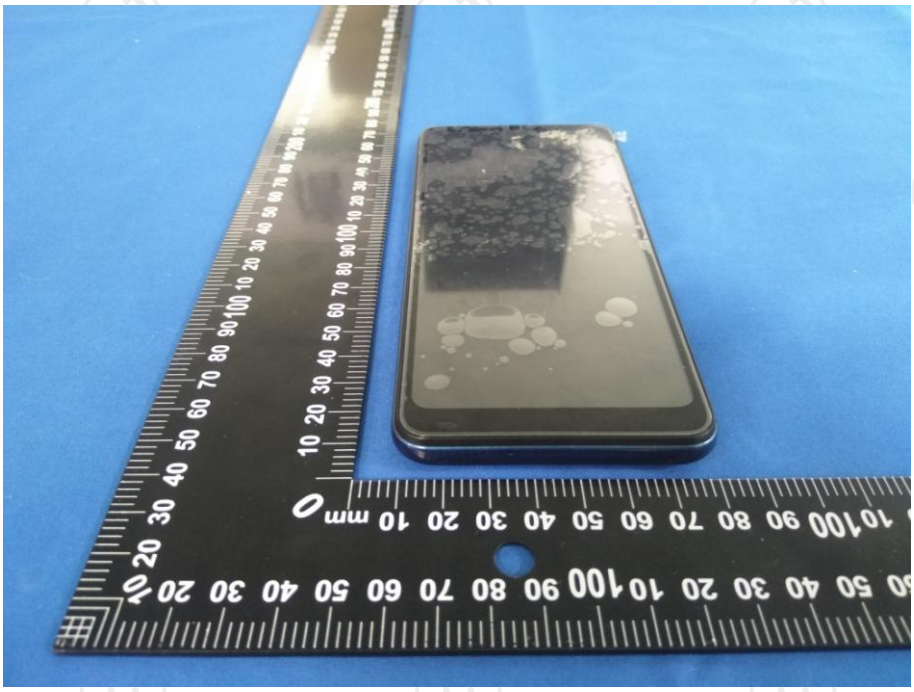
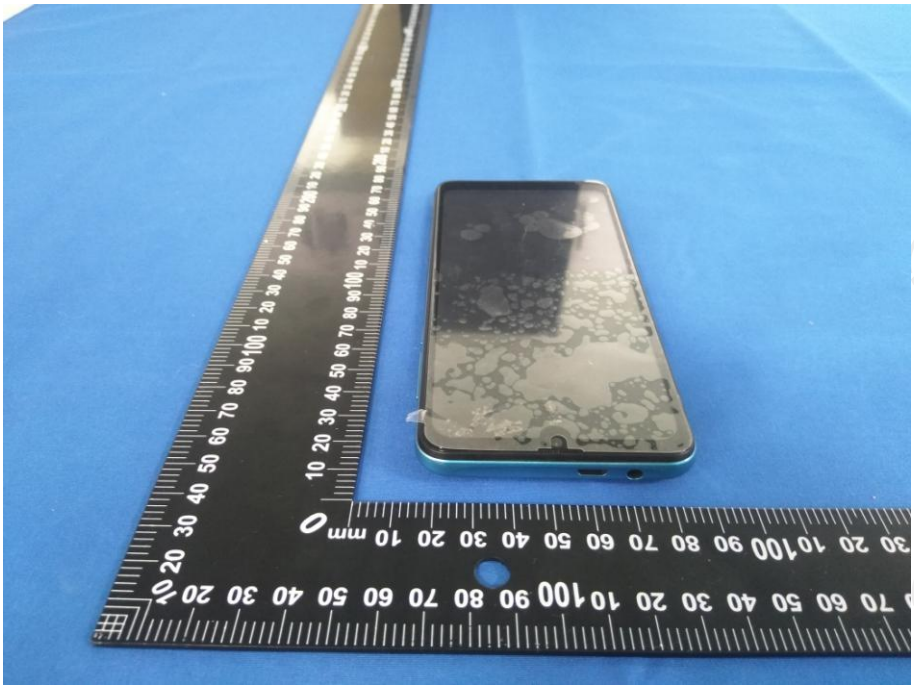
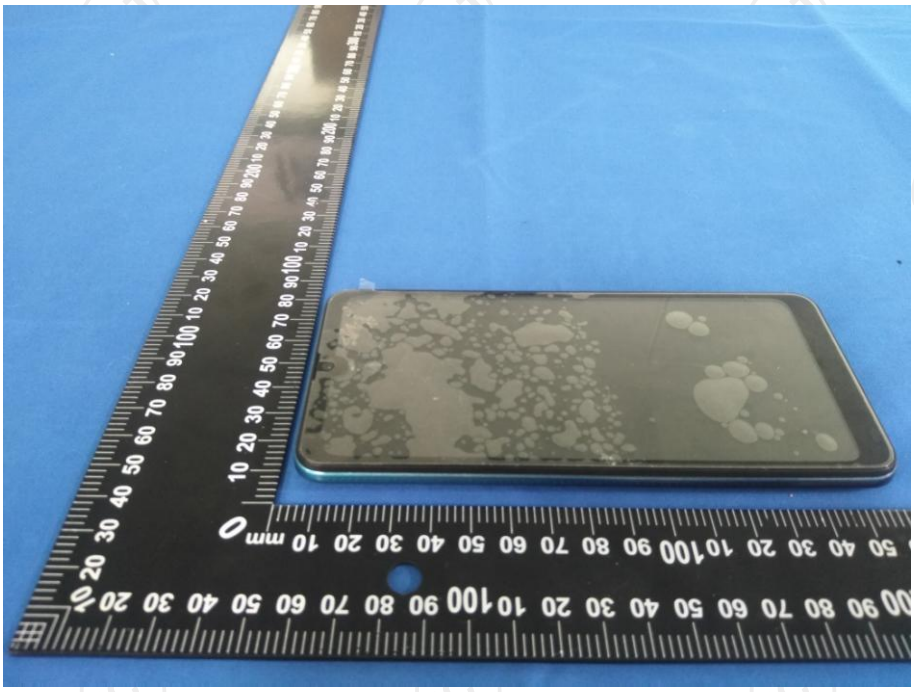
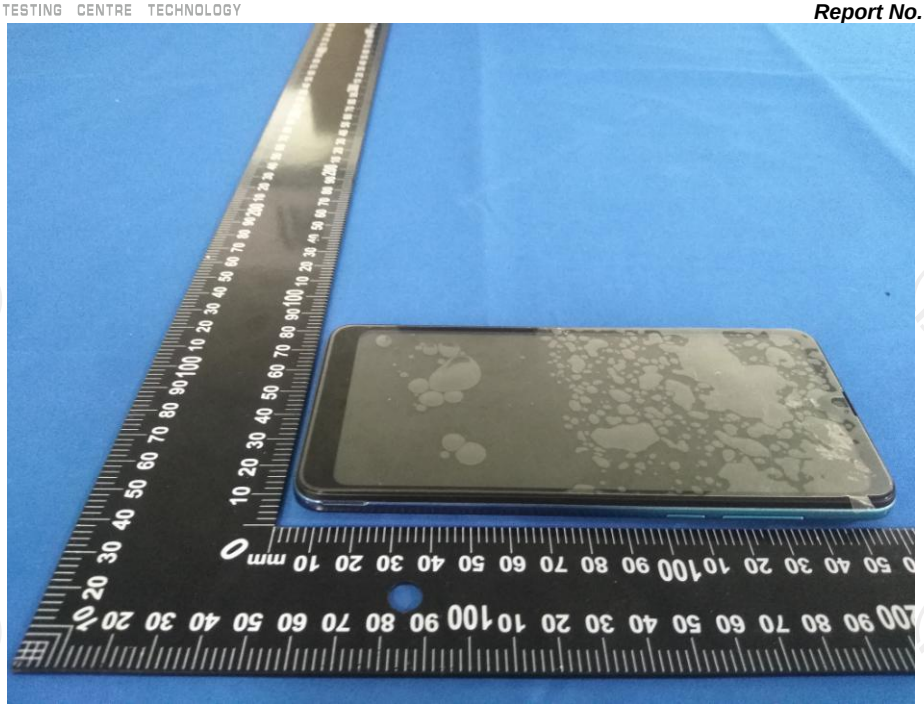

RAYO
MOVIL









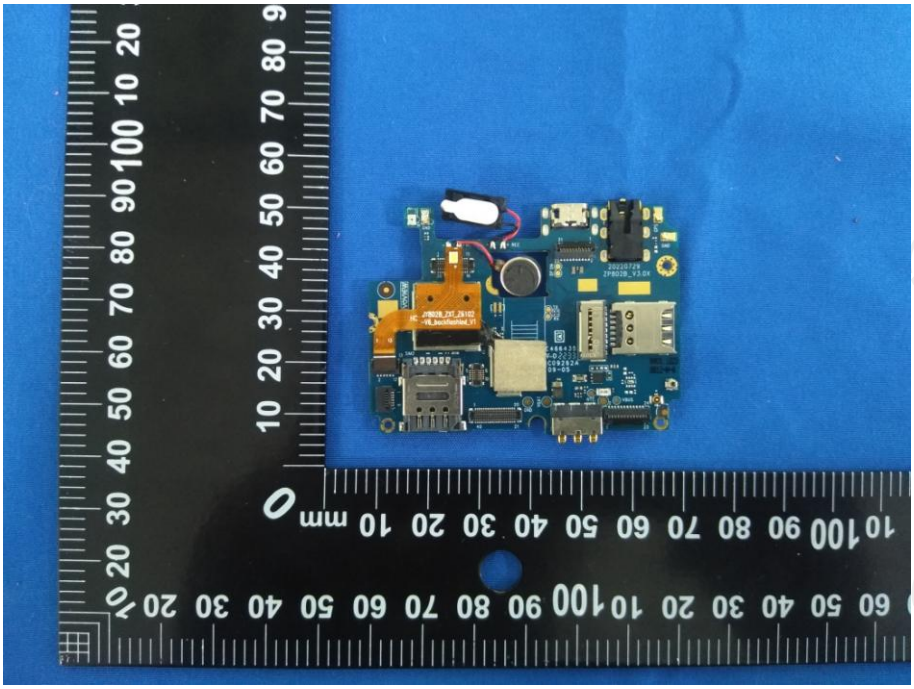
Internal Photos

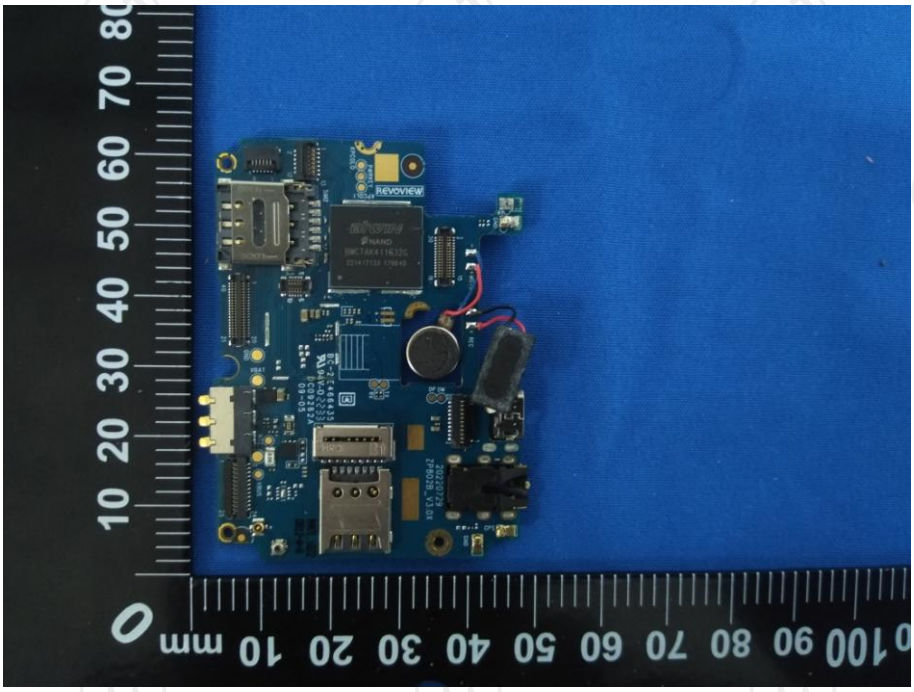

RAYO X1
Charging Limit voltage: 4.35 V
Standard: GB/T 31241-2014
Capacity: 3000mAh
CAUTION
- Use the original charger only
- Never dis-assemble yourself
- Never short-circuit the battery
- Dispose the battery properly
- Exposing the battery to open flames can cause an explosion
Li-ion
MADE IN CHINA

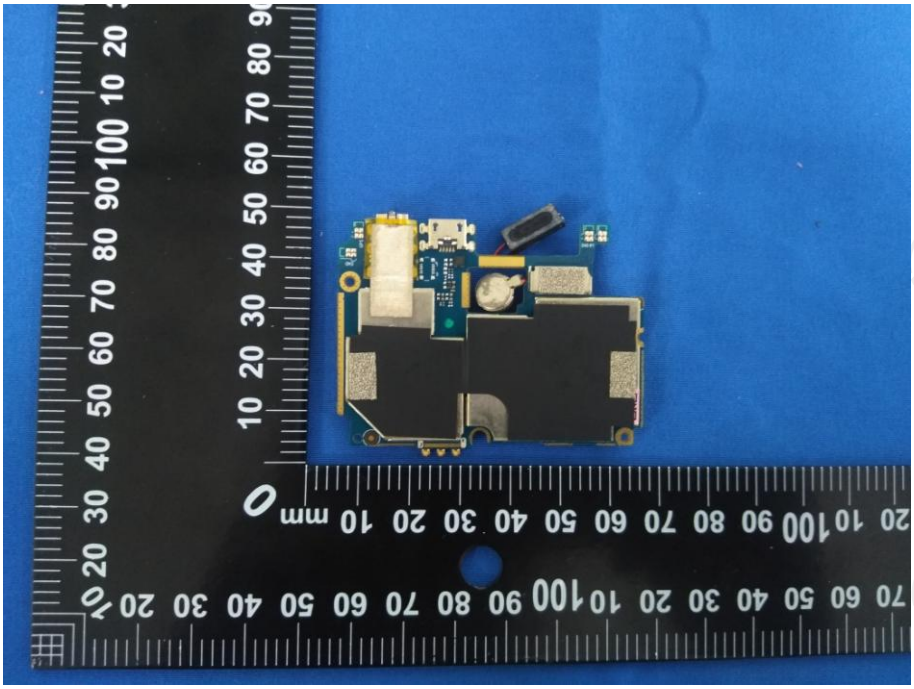

RAYO
MOVIL
Model:RAYOX1
IMEI 1: 353796401193640
IMEI 2: 353796401193657
S/N: RAYOX1092200009
MADE IN CHINA
FCC ID:2AEJARAYOX1

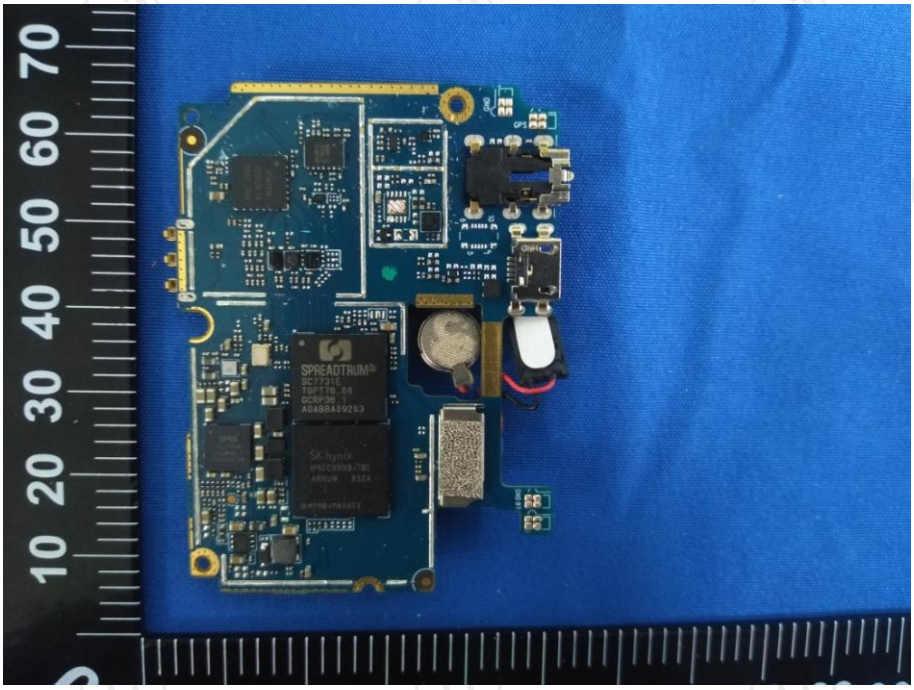

RAYO
MOVIL
Model:RAYOX1
IMEI 1: 353796401193640
IMEI 2: 353796401193657
S/N: RAYOX1092200009
MADE IN CHINA
FCC ID:2AEJARAYOX1


RAYO
MOVIL
Model:RAYOX1
IMEI 1: 353796401193640
IMEI 2: 353796401193657
S/N: RAYOX1092200009
MADE IN CHINA
FCC ID:2AEJARAYOX1









*****END OF REPORT*****

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