

**Address** 

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# **FCC Test Report**

**Shenzhen SOYES Premium Technology Applicant** 

limited

502 West Gate, Building 427, Bagua Ling

Industrial Zone, No.47 Bagua Fourth Road,

Futian District, Shenzhen, 518000, China

Mini smartphone **Product Name** 

**Report Date** Jun. 28, 2023

Compliance Appoint Safety

Anbotek

Product Safety Shenzhen Anbotek Compliante Laboratory Limited



www.anbotek.com.cn





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## TEST REPORT

Applicant : Shenzhen SOYES Premium Technology limited

Manufacturer : Shenzhen SOYES Premium Technology limited

Product Name : Mini smartphone

Model No. XS14Pro, XS15Pro, XS16Pro, P60Pro, M80Pro, XS88Pro, XS17Pro, W88Pro

SOYES M1Pro, K13, D13, i14mini, S202306

Trade Mark : SOYES

Rating(s) : Input: DC 5V (with DC 3.85V, 2000mAh Battery inside)

Test Standard(s) : FCC PART 2, FCC Part 22(H), FCC Part 24(E)

ANSI C63,26-2015

Test Method(s) : KDB 971168 D01 Power Meas License Digital Systems v03r01

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 22, FCC Part 24 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt	Jun. 01, 2023
Date of Test:	Jun. 01 ~ Jun. 19, 2023
Anbotek Anbotek Anbotek Anbotek An	Nian xiu Chen
Prepared by :	Anbores Ann ok shortek Anbo.
	(Nianxiu Chen)
	anhotek Anho. ak hotek An
botek Anbotek Anbotek Anbotek Anbotek	(ingkong)in
Approved & Authorized Signer :	actek Anborel Anbot Anbotek
	(Kingkong Jin)







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## **Revision History**

Report Version	Version Description Issued	
R00	Original Issue.	Jun. 28, 2023
Anbo. Anbo.	nootek Anbores Ann potek Anborek Anborek	Anbotek Anbo
er Aups	Anbotek Anborr All hotek Anbotek Anbotek	lek Vupotek Vi





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## 1. General Information

## 1.1. Client Information

Applicant	Shenzhen SOYES Premium Technology limited		
Address	502 West Gate, Building 427, Bagua Ling Industrial Zone, No.47 Bagua Fourth Road, Futian District, Shenzhen, 518000, China		
Manufacturer : Shenzhen SOYES Premium Technology limited			
Address 502 West Gate, Building 427, Bagua Ling Industrial Zone, Fourth Road, Futian District, Shenzhen, 518000, China		502 West Gate, Building 427, Bagua Ling Industrial Zone, No.47 Bagua Fourth Road, Futian District, Shenzhen, 518000, China	
Factory : Shenzhen SOYES Premium Technology limited		Shenzhen SOYES Premium Technology limited	
Address		502 West Gate, Building 427, Bagua Ling Industrial Zone, No.47 Bagua Fourth Road, Futian District, Shenzhen, 518000, China	

## 1.2. Description of Device (EUT)

Product Name	:	Mini smartphone
Model No.	:	XS14Pro, XS15Pro, XS16Pro, P60Pro,M80Pro, XS88Pro, XS17Pro, W88Pro, SOYES M1Pro, K13, D13, i14mini, S202306 (Note: All samples are the same except the model number and appearance color, so we prepare "XS14Pro" for test only.)
Trade Mark	:	SOYES AND THE
Test Power Supply	:	DC 3.85V Battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A Anbotek Anbotek Anbotek Anbotek
RF Specification		
Support Band	:	⊠ GSM850 ⊠ PCS1900
Support Network	:	GSM, GPRS, EGPRS
Transmit Frequency	:	GSM 850: 824.2~848.8MHz PCS 1900: 1850.2~1909.8MHz
Receive Frequency	:	GSM 850: 869.20~893.80MHz PCS 1900: 1930.20~1989.80MHz
Modulation Type	:	GMSK for GSM/GPRS 8PSK for EGPRS
GPRS Multislot Class	:	12 Anbotek Anbotek Anbotek An
EGPRS Multislot Class	:	112 Anbotes And Anbotek Anbotek Anbotek
Antenna Type	:	FPC Antenna
Antenna Gain(Peak)	:	GSM 850: 1.45 dBi (Provided by customer) PCS 1900: 1.76 dBi (Provided by customer)
Bomorks 1) For a more	بعمالا	ailed factures description, places refer to the manufacturer's enscitientions

**Remark:** 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.









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#### 1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Anbo ok botek	Anbore Anti-

#### 1.4. Operation State

#### **Test frequency list:**

GS	M850	PCS1900		
Channel	Frequency (MHz)	Channel	Frequency (MHz)	
128	824.20	512	1850.20	
190	836.60	661	1880.00	
251	848.80	810	1909.80	

#### Test mode:

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03 and ANSI C63.26-2015 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

30 MHz to 10th harmonic for GSM850, PCS1900.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

F1.	10° 40°	PO. PV.	
	Test modes		
Band	Conducted		
GSM 850	■ GSM link ■ GPRS Class 8 link ■ EGPRS Class 8 link	■ GSM link ■ GPRS Class 8 link ■ EGPRS Class 8 link	
PCS 1900	■ GSM link ■ GPRS Class 8 link ■ EGPRS Class 8 link	■ GSM link ■ GPRS Class 8 link ■ EGPRS Class 8 link	

#### 1.5. Environmental Conditions

Temperature range:	21-25℃	, abotek	Anborb.	And	Anbotek
Humidity range:	40-75%	A. abotek	Aupore.	Ann	Anbotek
Pressure range:	86-106kPa	. abořek	Anboten	And	anbotek







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## 1.6. Test Equipment List

100	h	more. And	191	- 200	. V	20360
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 13, 2022	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
<sub>@</sub> \3.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
00tek 004.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	2 Year
5.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
6.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
7.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
8.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
9.	DC Power Supply	LW M	TPR-6420D	374470	Oct. 22, 2022	1 Year
10.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 19, 2022	1 Year
otek 11.ek Inborek	Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	167336	Oct. 13, 2022	1 Year
12.	High-Pass Filter	CDKMV	ZHPF-BM1100 -4000-0730	B2015094550	Oct. 22, 2022	1 Year
13.	High-Pass Filter	CDKMV	ZHPF-M3.5 -18G-3834	1307006523	Oct. 22, 2022	1 Year
14.	Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	01109	Oct. 16, 2022	3 Year
15.	Double Ridged Horn Antenna	Chengyi Electronics Co., Ltd.	GTH-0118	351600	Nov. 02, 2022	2 Year





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#### 1.7. Measurement Uncertainty

#### Maximum measurement uncertainty

Parameter	Uncertainty				
RF output power, conducted	±1,5 dB				
Power Spectral Density, conducted	±3 dB				
Unwanted Emissions, conducted	±3 dB				
All emissions, radiated	±6 dB				
Temperature	±1 ℃				
Humidity	t5 % model Andores				
DC and low frequency voltages	±3 %				
Anbotes And Anbotek Anbotek	±5 %				
Confidence interval: 95%.	Confidence factor:k=2				

#### 1.8. Description of Test Facility

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

#### FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

#### ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

#### **Test Location**

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102







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## 2. Summary of Test

## 2.1. Summary of test result

FCC Rules	Description of Test	Result
Part 2.1046 Part 22.913(a) Part 24.232(c)	Conducted Output Power	Compliance
Part 24.232	Peak-Average Ratio	Compliance
§ 2.1047	Modulation Characteristics	N/A
Part 2.1049	99% Occupied Bandwidth & 26 dB Bandwidth	Compliance
Part 2.1051	Anbotek Anbotek Anbote	Pur Olek
Part 22.917	Conducted Spurious Emission	Compliance
Part 24.238	An Anboter Anbo	botek Anbors
Part 2.1051	And tek abotek Ando. A	potek Anbote
Part 22.917	Band Edge	Compliance
Part 24.238	hotek Anbotes And stek Anbotek	Anbo. Ak
Part 2.1055(a)(1)(b)	otek Anbotek Anbo ak botek	Anbore
Part 22.355	Frequency stability VS. temperature	Compliance
Part 24.235	Anbote And Stek Anbotek Anbo	ok botek
Part 2.1055(d)(1)(2)	Anbotek Anbotek Ar	Por VIII
Part 22.355	Frequency stability VS. voltage	Compliance
Part 24.235	And Anborek Anbo	abotek Anbo
Part 2.1046	Sore And Lek Sporek Anbon	Present Pr
Part 22.913(a)	ERP and EIRP	Compliance
Part 24.232(c)	And Andorek Ando tek abor	sk Aupore
Part 2.1053	Ann tek nbotek Anbo	otek Anboren
Part 22.917	Radiated Spurious Emission	Compliance
Part 24.238	k Anbote And And Abotek	Aupo. K N.

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different







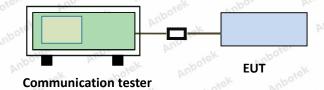
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## 3. Conducted Output Power Test

#### 3.1. Test Standard and Limit

Applicable Standard:	Part 2.1046	botek	Anbore A	no sek	Motek	Aupo
2	Part 22.913(a)					Anbore
o	Part 24.232(c)	Anbe	abotek	Anbore	Air.	Anb
Limit:	N/A	Anbo.	k hotek	Anbore	Ann	3K

#### 3.2. Test Setup



#### 3.3. Test Procedure

- 1. The EUT output port was connected to communication tester.
- 2. Set EUT at maximum power through communication tester.
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Measure the maximum burst average power.

#### 3.4. Test Data

Pass

Please refer to Appendix A of the Appendix Test Data.







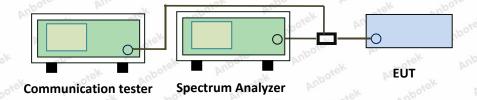
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## 4. Peak-Average Ratio

#### 4.1. Test Standard and Limit

Applicable Standard:	Part 24.232	abotek	Anbor	Ar. motek	Anboten	AUD
Limit:	13dB	Pr. Potek	Anbore	And	abotek	Anbo.

#### 4.2. Test Setup



#### 4.3. Test Procedure

#### According with KDB 971168 D01 Section 5.7:

- 1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
  - 2. Set EUT in maximum power output.
  - 3. Center Frequency = Carrier frequency, RBW > Emission bandwidth of signal.
  - 4. The signal analyzer was set to collect one million samples to generate the CCDF curve.
  - 5. The measurement interval was set depending on the type of signal analyzed.
  - i. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.
- ii. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power
  - 6. Record the maximum PAPR level associated with a probability of 0.1%.

#### 4.4. Test Data

**Pass** 

Please refer to Appendix B of the Appendix Test Data.







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## 5. Modulation Characteristic

According to FCC § 2.1047(d), Part 22H, Part 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.





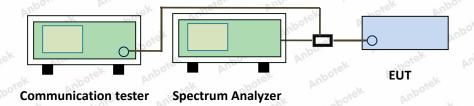
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## 6. 99% Occupied Bandwidth & 26 dB Bandwidth

#### 6.1. Test Standard and Limit

Applicable Standard:	Part 2.1049	abotek	Anbore	Pr. Potek	Anbotek	VUD.
Limit:	N/A	L botek	Anbore	YUR -FEK	abotek	Aupo.

#### 6.2. Test Setup



#### 6.3. Test Procedure

- 1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
- 2. Set EUT in maximum power output.
- Spectrum analyzer setting as follow: Center Frequency= Carrier frequency, RBW=1% to 5% of anticipated OBW, VBW= 3 \* RBW, Detector=Peak,

Trace maximum hold.

4. Record the value of 99% Occupied bandwidth and -26dB bandwidth.

#### 6.4. Test Data

Pass

Please refer to Appendix C of the Appendix Test Data.







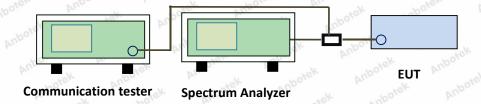
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## 7. Band Edge

#### 7.1. Test Standard and Limit

Applicable Standard:	Part 2.1051
	Part 22.917
	Part 24.238
Limit:	Part 24.238 and Part 22.917 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
	The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

#### 7.2. Test Setup



#### 7.3. Test Procedure

- 1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
- 2. Set EUT in maximum power output.
- 3. The band edges of low and high channels were measured.
- Spectrum analyzer setting as follow:
   RBW=3KHz, VBW = 10KHz, Sweep time= Auto
- 5. Record the test plot.

#### 7.4. Test Data

**Pass** 

Please refer to Appendix D of the Appendix Test Data.







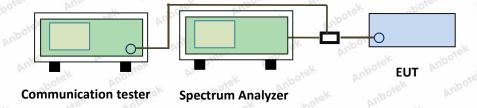
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## 8. Conducted Spurious Emission

#### 8.1. Test Standard and Limit

- 1	A 1: 1- 1 Ot11	Dot 0 4054
V.	Applicable Standard:	Part 2.1051
		Part 22.917
0		Part 24.238
	Limit:	Part 24.238 and Part 22.917 specify that the power of any emission outside of
7/		the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
17.00		The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

#### 8.2. Test Setup



#### 8.3. Test Procedure

- 1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter.
- 2. Set EUT in maximum power output.
- Spectrum analyzer setting as follow:
   Below 1GHz, RBW=100KHz, VBW = 300KHz, Detector=Peak, Sweep time= Auto Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peak, Sweep time= Auto Scan frequency range up to 10<sup>th</sup> harmonic.
- 4. Record the test plot.

#### 8.4. Test Data

**Pass** 

Please refer to Appendix E of the Appendix Test Data.







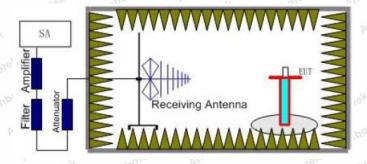
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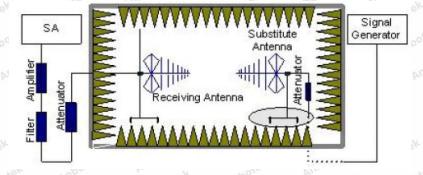
## 9. Radiated Spurious Emission

#### 9.1. Test Standard and Limit

Applicable Standard:	Part 2.1053	abotek	Aupor	in otek	Anboten	AUD
7	Part 22.917					Anbor
o	Part 24.238	Ande	abotek	Anbor	Air.	Anb
Limit:	-13dBm	Vupo.	k hotel	Anbore	VUr.	JK

#### 9.2. Test Setup





#### 9.3. Test Procedure

- 1. Place the EUT in the center of the turntable.
  - a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
  - b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
- 2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
- 3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
- 4. Receiver or Spectrum set as follow:

Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto



Code: AB-RF-05-b 400-003-0500 www.anbotek.com.cn





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Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto

- 5. Each emission under consideration shall be evaluated:
  - a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
  - b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
  - c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
  - d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
  - e) Record the measured emission amplitude level and frequency
- 6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
- Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
- 8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
- 9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
- 10. For each emission that was detected and measured in the initial test
  - a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
  - b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
  - c) Record the output power level of the signal generator when equivalence is achieved in step b).
- Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
- 12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

Pe = Ps(dBm) - cable loss (dB) + antenna gain (dBd)

where

Pe = equivalent emission power in dBm

Ps = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.

13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:

gain (dBd) = gain (dBi) - 2.15 dB.

If necessary, the antenna gain can be calculated from calibrated antenna factor information

14. Provide the complete measurement results as a part of the test report.

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9.4. Test Data

Pass

Note: Worst case at GSM850/PCS1900

			GS	M850			
	Fraguanav						
Channel	Frequency (MHz)	Polarization	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Result
ek bir	1648.40	Vertical	-41.21	5.32	-35.89	hotek	Anboier
	2472.60	Anbotok	-48.93	9.32	-39.61	<-13.00	PASS
Anbotes V	3296.80	AnViek	-53.08	12.48	-40.60	Anna	
128	1648.40	Horizontal	-42.36	5.32	-37.04	PUP.	ek ant
	2472.60	ek H nbok	-49.95	9.26	-40.69	<-13.00	PASS
	3296.80	Jok H	-54.01	12.49	-41.52	potek And	
ootek p	1673.20	Vertical	-40.36	5.33	-35.03	Anborek	Vupo.
	2509.80	Anbox V	-47.96	9.16	-38.80	<-13.00	0 PASS
Anbe 100'ek	3346.40	Plufor OK	-52.33	12.49	-39.84	nbotek	
190	1673.20	Horizontal	-41.33	5.34	-35.99	ek nbott	anb Anb
	2509.80	Isk Hanbor	-49.10	9.26	-39.84	<-13.00	PASS
	3346.40	botek H Anb	-53.39	12.68	-40.71	00, by	
otek A	1697.60	Vertical	-39.12	5.56	-33.56	Aupor	Projek
	2546.40	No.k	-46.74	9.28	-37.46	<-13.00	PASS
	3395.20	Votek	-51.22	12.65	-38.57	Anbore	
251	1697.60	Horizontal	-41.15	5.67	-35.48	ak Anbore	r bun
	2546.40	H	-48.72	9.36	-39.36	<-13.00	PASS
	3395.20	otek H Anto	-52.99	12.69	-40.30	hotek s	

#### Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. The emission levels of not record in the report are very lower than the limit and not show in test report.







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			PCS	1900			
	Fraguanay		Spurious				
Channel	Frequency (MHz)	Polarization	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Result
Anbotek	3700.40	Vertical	-47.00	13.45	-33.55	Vupo.	ok A
	5550.60	V V	-54.74	16.61	-38.13	<-13.00	PASS
8 F40 - 1	7400.80	V	-58.63	17.92	-40.71	abotek Ar	
512	3700.40	Horizontal	-48.17	13.45	-34.72	botek	Aupole
	5550.60	Anbot H	-55.84	16.61	-39.23	<-13.00	PASS
	7400.80	An Hrek	-59.66	17.92	-41.74	Anshotek	
Vuposo.	3760.00	Vertical	-46.07	13.49	-32.58	r roj	ek An'
	5640.00	ek V anbot	-53.91	16.69	-37.22	<-13.00	PASS
K OCA Anb	7520.00	otek V	-57.91	18.06	-39.85	poter An	
661	3760.00	Horizontal	-47.40	13.49	-33.91	Anboren	Anba
	5640.00	Anbe Hek	-55.16	16.69	-38.47	<-13.00	PASS
	7520.00	Aupo.	-59.09	18.06	-41.03	Anborek	
Anba	3819.60	Vertical	-44.55	13.12	-31.43	ek nboti	Pur.
	5729.40	Sk Aupou	-53.17	17.03	-36.14	<-13.00	PASS
Anbo	7639.20	otek V Anto	-56.93	18.09	-38.84	ou kek	
810	3819.60	Horizontal	-46.08	13.12	-32.96	Anbo.	Anbotek
	5729.40	Hey	-54.61	17.03	-37.58	<-13.00	PASS
	7639.20	Hotek	-58.28	18.09	-40.19	Anbore	

#### Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. The emission levels of not record in the report are very lower than the limit and not show in test report.





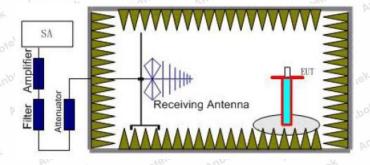
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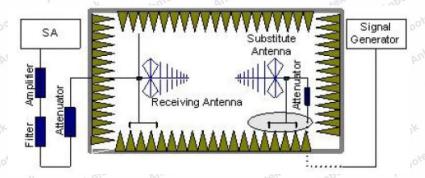
#### 10. ERP and EIRP

#### 10.1. Test Standard and Limit

	Applicable Standard:	Part 2.1046	abotek	Anboro	Die Ciek	Aupoten	Vup.
,		Part 22.913(a)					Aupor
O		Part 24.232(c)	Anbe	abotek		-k Air	k Anb
	Limit:	GSM850: 7W (38.	45dBm) ERP	or No.	ek Anbo	And	tek
1		PCS1900: 2W (33	dBm) EIRP				o. h

#### 10.2. Test Setup





#### 10.3. Test Procedure

- 1. Place the EUT in the center of the turntable.
  - a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
  - b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
- 2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
- 3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
- 4. Receiver or Spectrum set as follow:



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Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto

Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto

- 5. Each emission under consideration shall be evaluated:
  - a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
  - b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
  - c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
  - d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
  - e) Record the measured emission amplitude level and frequency
- 6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
- Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
- 8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
- 9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
- 10. For each emission that was detected and measured in the initial test
  - a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
  - b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
  - c) Record the output power level of the signal generator when equivalence is achieved in step b).
- 11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
- 12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

Pe = Ps(dBm) - cable loss (dB) + antenna gain (dBd)

where

Pe = equivalent emission power in dBm

Ps = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.

13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:

gain (dBd) = gain (dBi) - 2.15 dB.

If necessary, the antenna gain can be calculated from calibrated antenna factor information

14. Provide the complete measurement results as a part of the test report.

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10.4. Test Data

#### Pass

Mada	Oh ann al	ERP (	(dBm)	l ::t (-ID)	Desuit
Mode	Channel	Vertical	Horizontal	Limit (dBm)	Result
	128	31.53	28.62	Anbore. Ar	work Anbo
GSM850	190	30.63	27.68	<38.45	PASS
	251	30.93	27.89		Anbo
	128	27.34	25.62	otek Anbotek	Anbo
GPRS850	190	26.14	24.97	<38.45	PASS
	251 M	25.93	24.76		otek Aupois
	128	26.36	27.73	Anb	Anbotek Anbot
EGPRS850	190	25.52	25.37	<38.45	PASS
	251	25.79	26.22		h. abotek

Mada	Charral	EIRP	(dBm)	Lineit (dDne)	Desult
Mode	Channel	Vertical	Horizontal	Limit (dBm)	Result
And	512	27.46	20.54	And	anbotek Anb
PCS1900	661	27.55	20.85	<33.00	PASS
Aupotek Aupo.	810	27.30	20.57	stek Anbo	, abotek
Anbotek Anbe	512	23.21	18.42	upotek Aupo	ek abotek
GPRS1900	661	23.62	18.60	<33.00	PASS
k anbotek	810	23.69	18.63	Anbotek P	upor Arr
lek anbotek	512	26.88	20.53	nbotek	Anbore Am
EGPRS1900	661	27.24	20.94	<33.00	PASS
upo, ek upo	810	26.44	20.27	tek abotek	Anbote





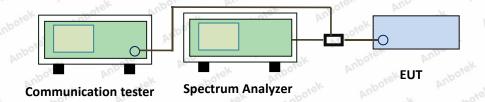
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## 11. Frequency stability VS Voltage measurement

#### 11.1. Test Standard and Limit

	V		L-05*			
Applicable Standard:	Part 2.1055(d)(1)(2)					AUD
	Part 22.355					Aupo,
	Part 24.235	Anb	abotek	Anbore	W. Potek	Anbo
Limit:	2.5ppm	Anbo.	-K Mose	anbore.	ALLE	3/4 o

#### 11.2. Test Setup



#### 11.3. Test Procedure

- 1. The equipment under test was connected to an external DC power supply and input rated voltage.
- 2. The EUT output port was connected to communication tester.
- 3. The EUT was placed inside the temperature chamber at 25°C.
- 4. The power supply voltage to the EUT was varied ±15% of the nominal value measured at the input to the EUT.
- 5. Record the maximum frequency change.

#### 11.4. Test Data

Pass

Please refer to Appendix F of the Appendix Test Data.







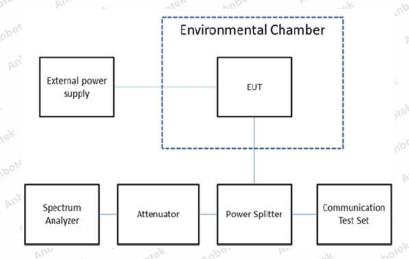
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## 12. Frequency stability VS Temperature measurement

#### 12.1. Test Standard and Limit

AU '	V VO' DV'		1460			~0,
Applicable Standard:	Part 2.1055(a)(1)(b)					Ann
	Part 22.355					Aupor
	Part 24.235					
Limit:	2.5ppm	Anbo.	-K NOTE	Anbore.	VUE	3K

#### 12.2. Test Setup



#### 12.3. Test Procedure

- 1. The equipment under test was connected to an external DC power supply and input rated voltage.
- 2. The EUT output port was connected to communication tester.
- 3. The EUT was placed inside the temperature chamber.
- 4. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
- 5. Repeat step 4 measure with 10°C increased per stage until the highest temperature of +50°C reached.

#### 12.4. Test Data

Pass

Please refer to Appendix G of the Appendix Test Data.







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#### **APPENDIX I -- TEST SETUP PHOTOGRAPH**

Please refer to separated files Appendix I -- Test Setup Photograph\_Licence

## APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

#### APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

------ End of Report -----

