



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/2

Report No.: SZCR260200072102

Page: 1 of 29

TEST REPORT

Application No.: SZCR2602000721AT
Applicant: Guangdong Transtek Medical Electronics Co., Ltd.
Address of Applicant: Zone A, No.105 Dongli Road, Torch Development District, 528437
Zhongshan, Guangdong, China
Manufacturer: Guangdong Transtek Medical Electronics Co., Ltd.
Address of Manufacturer: Zone A, No.105 Dongli Road, Torch Development District, 528437
Zhongshan, Guangdong, China
Factory: Guangdong Transtek Medical Electronics Co., Ltd.
Address of Factory: Zone A, No.105 Dongli Road, Torch Development District, 528437
Zhongshan, Guangdong, China
Equipment Under Test (EUT):
EUT Name: Cellular Body Scale
Model No.: GBS-2104-G
FCC ID: OU9GBS-2104-G
Standard(s) : 47 CFR Part 2
47 CFR Part 22 subpart H
47 CFR Part 24 subpart E
Date of Receipt: 2026-02-28
Date of Test: 2026-03-23 to 2026-04-06
Date of Issue: 2026-04-07

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch EMC Laboratory

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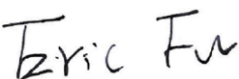
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2026-04-07		Original

Authorized for issue by:				
				
		Edison Li/Project Engineer		
				
		Eric Fu/Reviewer		



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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913, §24.232	ERP≤7W(GSM850) EIRP≤2W(GSM1900)	PASS
Peak-Average Ratio	§24.232	≤13dB	PASS
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238	≤ -13dBm	PASS
Field strength of spurious radiation	§2.1051, §22.917, §24.238	≤ -13dBm	PASS
Frequency stability	§2.1055, §22.355, §24.235	≤ ±2.5ppm.	PASS

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 6V(4*AA batteries)
Sample Type:	Portable production
Support Network:	GPRS, EGPRS
Operation Frequency Band:	GSM850/GSM1900
Modulation Type:	GMSK for GPRS/EGPRS; 8PSK for EGPRS;
Supported Channel Bandwidth:	200KHz
GPRS Class:	12
EGPRS Class:	12
Antenna Type:	PIFA antenna
Antenna Gain:	0.5dBi for GSM850, 3.5dBi for PCS1900
Extreme vol. Limits:	5.4VDC to 6.0VDC (nominal: 6VDC)

4.2 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1000Pa	
Temperature:	TN	20 °C
Voltage:	VL	5.4 V
	VN	6.0 V
	VH	6.0 V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.3 Test Frequency

Test mode:	RF Channel		
	Low (L)	Middle (M)	High (H)
GSM850	Channel 128	Channel 190	Channel 251
	824.2MHz	836.6 MHz	848.8 MHz
Test mode:	RF Channel		
	Low (L)	Middle (M)	High (H)
GSM1900	Channel 512	Channel 661	Channel 810
	1850.2MHz	1880.0 MHz	1909.8 MHz

4.4 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-08
RF Cable	SGS	N/A(Cable loss:1.2 dB)	N/A

4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	5.14dB (below 1GHz)
		5.08dB (above 1GHz)
8	Radiated Spurious emission test	5.14dB (below 1GHz)
		5.08dB (above 1GHz)
9	Temperature test	$\pm 1^{\circ}\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



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4.6 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.7 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None



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5 Equipment List

RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2025-07-24	2026-07-23
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2026/2/3	2027/2/2
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2025-09-10	2026-09-09
Measurement Software	Tonscend	TS1120 V2.4.1	N/A	NCR	NCR
Coaxial Cable	SGS	N/A	SEM031-01	2025-07-05	2026-07-04
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2026/2/2	2027/2/1
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2026/2/3	2027/2/2

RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
MXE EMI receiver	KEYSIGHT	N9038B	SEM004-29	2025-07-25	2026-07-24
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2026-01-05	2027-01-04
Pre-Amplifier 30MHz-1GHz	SGS	AMP30M1G30	SEM005-33	2026/2/3	2027/2/2
Low Noise Amplifier 1G-18GHz	Tonscend	TAP01018050	SZ-WRG-M-051	2026-01-05	2027-01-04
Double-ridged waveguide horn(1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2025-09-13	2027-09-12
Trilog-Broadband Antenna(25MHz-2GHz)	Schwarzbeck	VULB9168	SEM003-44	2025-05-28	2027-05-27
TRILOG Breitband Antenne 30MHz-1GHz	SCHWARZBECK	VULB 9168	SEM003-18	2025/8/29	2027/8/28
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SEM003-54	2025/3/6	2027/3/5
Radio Communication Tester	Anritsu	MT8821C	SZ-WRG-M-042	2026-03-03	2027-03-02
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	SEM010-11	2026/2/3	2027/2/2
RSE Test Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2025-01-06	2028-01-05
Signal Generator(9kHz-	N5173B	MY53270267	Agilent	2025-07-21	2026-07-20



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40GHz)					
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-32	2025-03-06	2027-03-05
Pre-amplifier	Rohde & Schwarz	CH14-H052	SEM005-17	2025-03-21	2026-03-20
Substitution Antenna	Rohde & Schwarz	HF907	SEM003-06	2024-08-03	2026-08-02
Substitution Antenna	ETS-LINDGREN	3160-09	SEM003-12	2024-08-03	2026-08-02
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2026/2/3	2027/2/2

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2025-07-23	2026-07-22
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2025-07-23	2026-07-22
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2026/2/14	2027/2/13



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6 Radio Spectrum Matter Test Results

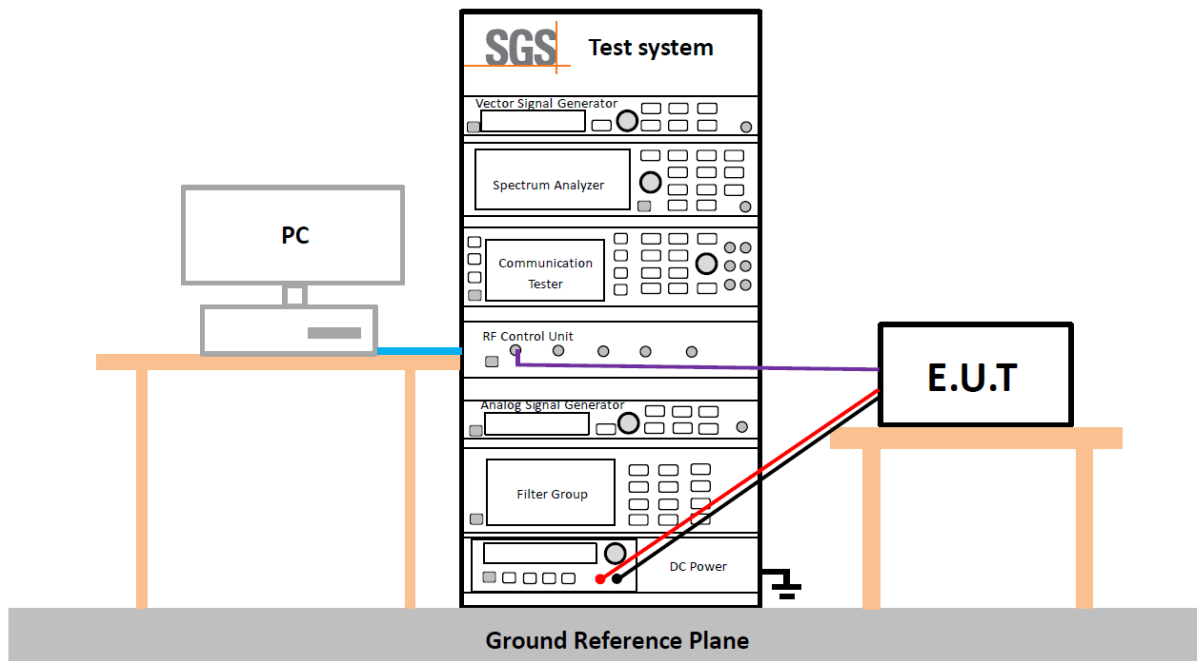
6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §22.913, §24.232
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: ERP ≤ 7W(GSM850)
 EIRP ≤ 2W(GSM1900)

6.1.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

KDB 971168 D01 V03r01 Section 5.2.1; ANSI C63.26-2015 Section 5.2

Some radio service rule parts specify the RF output power limits in terms of total average power or total average ERP or EIRP. Total average power is often implied when the limit is stated as average but no reference bandwidth is specified. When average power measurements are permitted, there may also be a limit imposed on the peak-to-average power ratio (PAPR) of the signal.

When average limits are specified, the averaging is to be performed only over durations of active transmissions at maximum output power level (i.e., averaging over the symbol transitions particular to the applied modulation scheme). For licensed digital transmitters, average measurements do not include averaging over periods when the transmitter is quiescent or when operating at reduced power levels.

Thus, for burst transmissions, the EUT must either be configured to transmit continuously at full power while the compliance measurement is performed, or the measurement instrumentation must be configured to acquire data only over durations when the EUT is actively transmitting at full power. A spectrum/signal analyzer, an EMI receiver or an average-reading power meter can be used to perform this measurement as long as the above condition can be realized.

Additionally, when using a spectrum/signal analyzer to perform an average power measurement, the number of measurement points in each sweep must be set greater than or equal to twice the span divided by the RBW (# measurement points $\geq 2 \times \text{span} / \text{RBW}$). This will ensure a bin-to-bin spacing that is less than or equal to the RBW / 2, so that narrowband signals are not lost between frequency bins.

KDB 971168 D01 V03r01 Section 5.8.4; ANSI C63.26-2015 Section 5.2

It is often more convenient to measure the field strength in a radiated measurement and then mathematically convert the measured level to an equivalent power level for comparison to the applicable limit. The following relationships can be used to facilitate using radiated measurement data to demonstrate compliance to the relevant conducted output power limits (assuming that all radiated data was collected in the far-field region of both transmit and receive antennas):

- $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters.
- $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8$; where D is the measurement distance in meters.
- $\text{ERP} = \text{EIRP} - 2.15 \text{ (dB)}$; where ERP and EIRP are expressed in consistent units.
- $\text{EIRP} = \text{ERP} + 2.15 \text{ (dB)}$; ERP and EIRP are expressed in consistent units.

Note that the antenna factor is typically only provided for standard measurement distances (e.g., 1 m and/or 3 m), and thus may be a deciding factor in choosing what measurement distance to use.

Please Refer to Appendix A.1, Appendix A.2 for Details



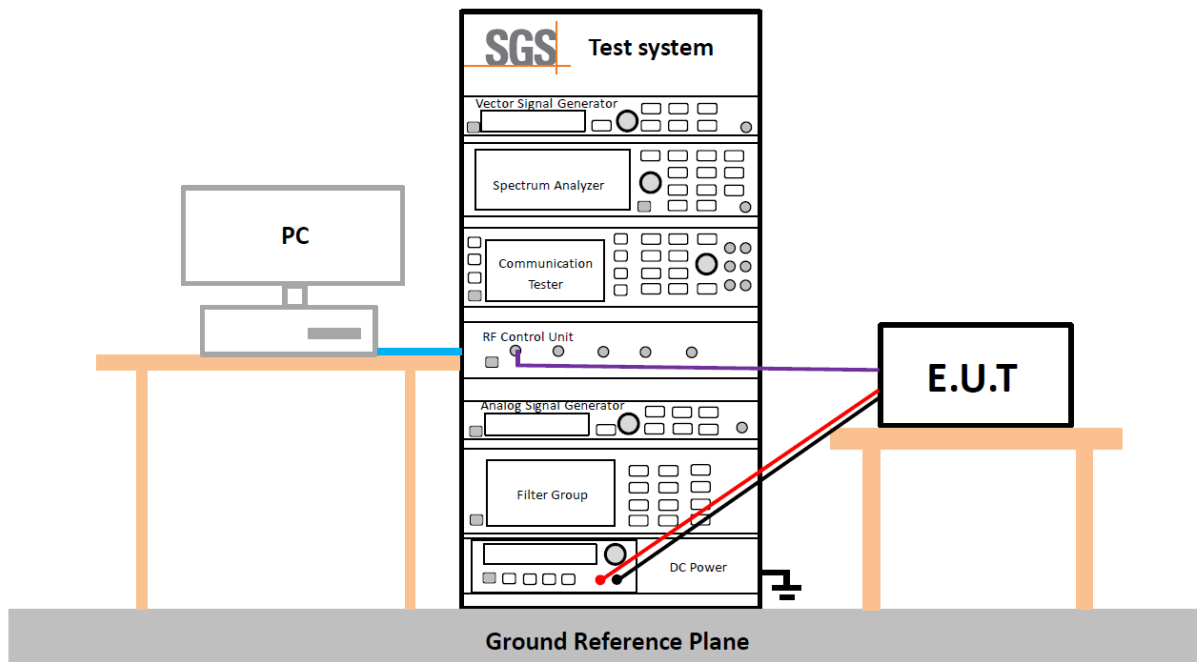
6.2 Peak-Average Ratio

Test Requirement: §24.232
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: ≤13dB

6.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

KDB 971168 D01 V03r01 Section 5.7.2; ANSI C63.26-2015 Section 5.2.3.4

The inherent randomness of the power peaks in a noise-like signal and the wide bandwidths associated with modern technologies makes it difficult to quantify the peak power using traditional measurement techniques. Because the peak power of a noise-like signal is predictable only on a statistical basis, a statistical measurement of the peak power is preferred.

CCDF curves provide a means for characterizing the power peaks of a noise-like signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation offers the capability to produce CCDF curves for a noise-like input signal.

See instrumentation-specific application literature for further guidance regarding use of the CCDF capability. The following guidelines are offered for performing a CCDF measurement.

- a) Set resolution/measurement bandwidth $\geq$ OBW or specified reference bandwidth.
- b) Set the number of counts to a value that stabilizes the measured CCDF curve.
- c) Set the measurement interval as follows:
 - 1) For continuous transmissions, set to the greater of $[10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$ or 1 ms.
 - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
 - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
- d) Record the maximum PAPR level associated with a probability of 0.1%.
- e) The peak power level is calculated from the sum of the PAPR value from step d) to the measured average power.

Please Refer to Appendix A.1, Appendix A.2 for Details



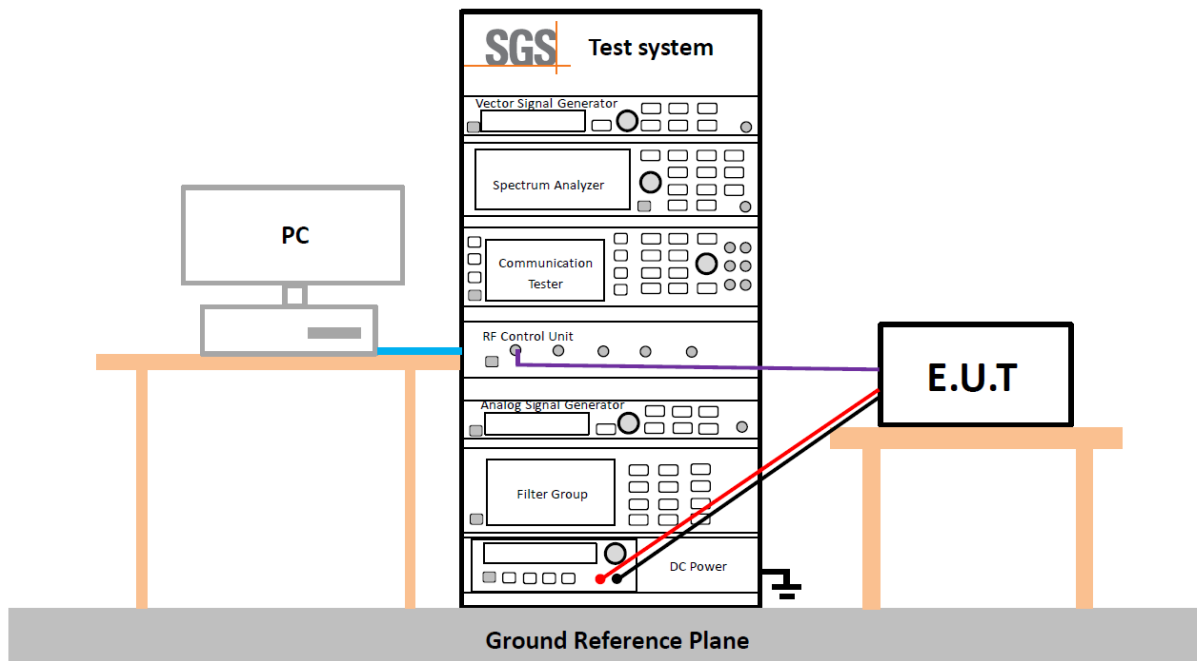
6.3 Bandwidth

Test Requirement: \$2.1049(h), \$22.917, \$24.238
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: OBW: No limit
 EBW: No limit

6.3.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

KDB 971168 D01 V03r01 Section 4.2 & 4.3; ANSI C63.26-2015 Section 5.4.3

The OBW is measured as the width of the spectral envelope of the modulated signal, at an amplitude level reduced from a reference value by a specified ratio (or in decibels, a specified number of dB down from the reference value). The typical ratio for transmitters is -26 dB, corresponding to the 26 dB BW; however, other ratios can be specified. In this subclause, the ratio is designated by “-X dB.”

NOTE—This parameter, when expressed in relative terms, is often referred to in regulations as the EBW.

The reference level is either the amplitude of the unmodulated carrier, or the highest amplitude of the spectral envelope of the modulated signal, as stated by the applicable requirement. Some requirements can specify a particular maximum or minimum value for the “-X dB” bandwidth; other requirements can specify that the “-X dB” bandwidth be entirely contained within the authorized or designated frequency band.

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.

b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.

e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

f) Determine the reference value by either of the following:

1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).

2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.

g) Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.

h) If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).

i) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.



The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.”

j) The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

ANSI C63.26-2015 Section 5.4.4

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring (99%) power bandwidth:31

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient).

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) Set the detection mode to peak, and the trace mode to max-hold.

e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.

f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Please Refer to Appendix A.1, Appendix A.2 for Details

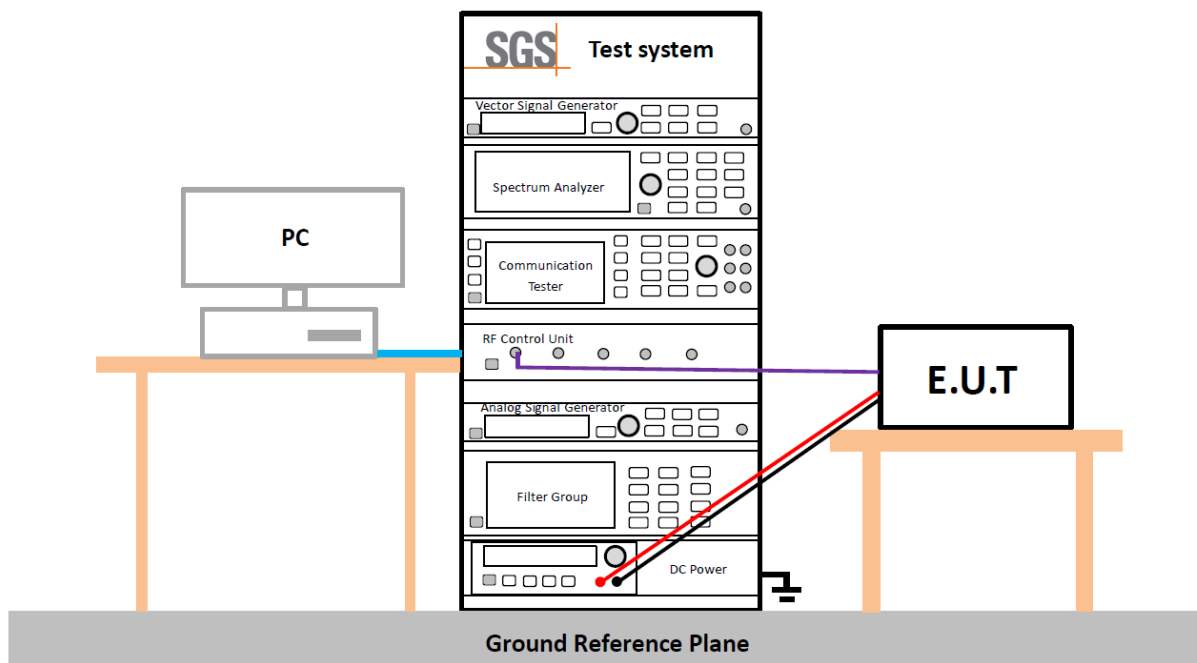
6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq -13\text{dBm}/1\% \cdot \text{EBW}$, in 1 MHz bands immediately outside and adjacent to the frequency block.

6.4.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

KDB 971168 D01 V03r01 Section 6.0; ANSI C63.26-2015 Section 5.7

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel). in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW $\geq$ 1% of the emission bandwidth
4. VBW $\geq$ 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq$ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Please Refer to Appendix A.1, Appendix A.2 for Details



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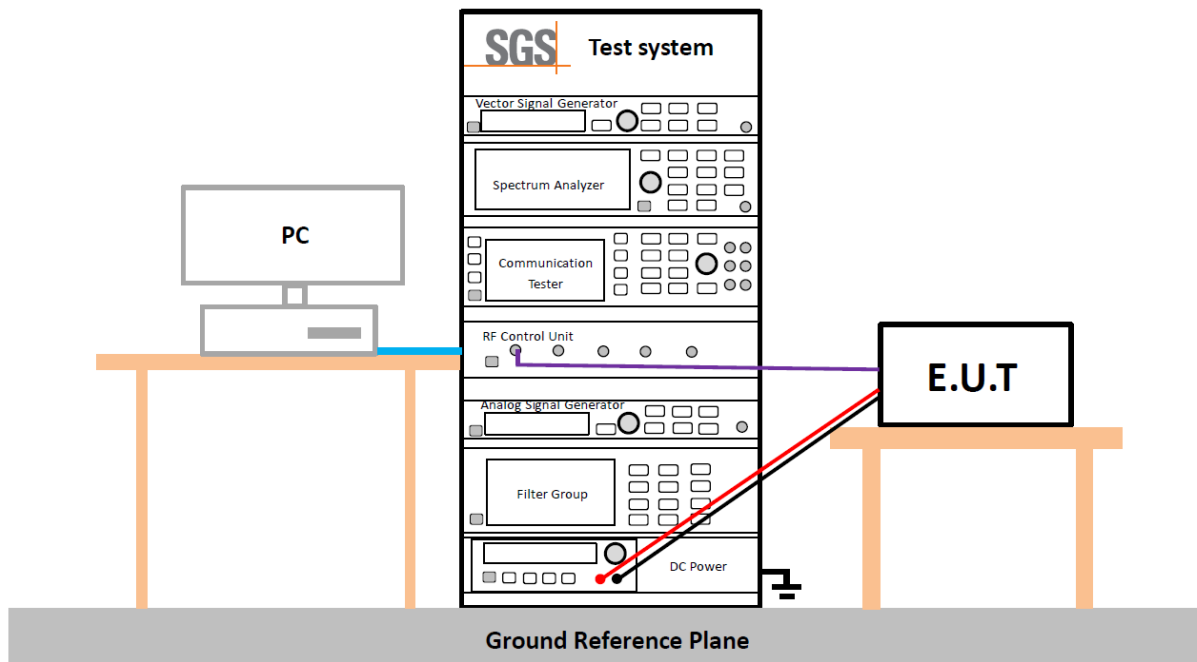
6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq -13\text{dBm}$

6.5.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

KDB 971168 D01 V03r01 Section 6.0; ANSI C63.26-2015 Section 5.7

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Test Settings

1. Start frequency was set to 9kHz and stop frequency was set to at least 10* the fundamental frequency (Separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Remark: The Spurious and Harmonic Emissions for TDD offset is calculated by adding the Duty Factor and Cable loss. The basic equation with a sample calculation is as follows: Offset= Duty Factor + Cable loss.

Please Refer to Appendix A.1, Appendix A.2 for Details



6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238,
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq -13\text{dBm}$

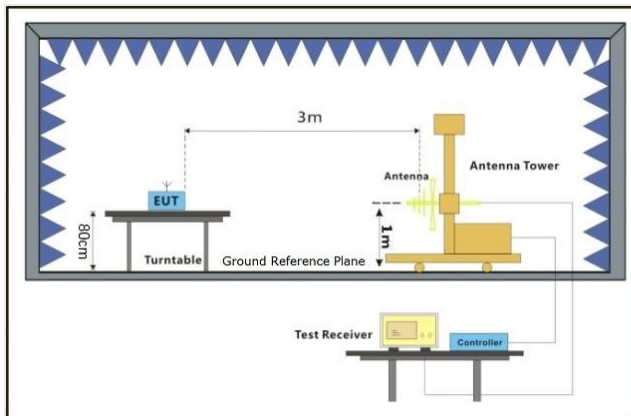
6.6.1 E.U.T. Operation

Operating Environment:

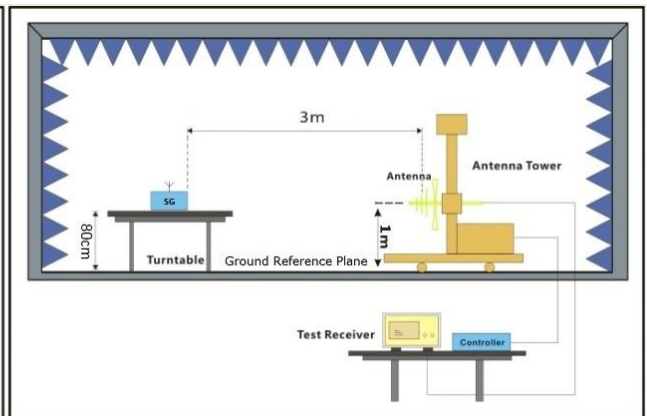
Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar

Test mode: 02:TX mode_Keep the EUT in transmitting mode

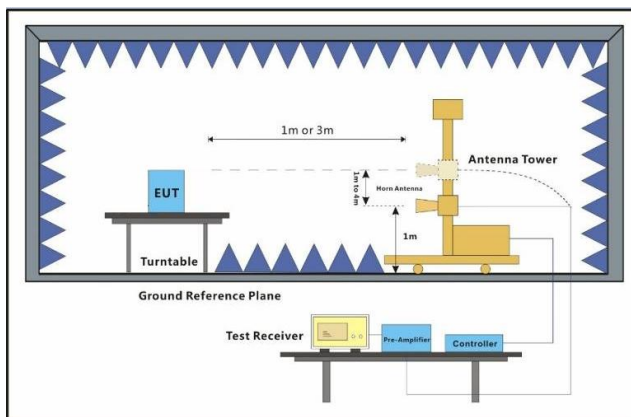
6.6.2 Test Setup Diagram



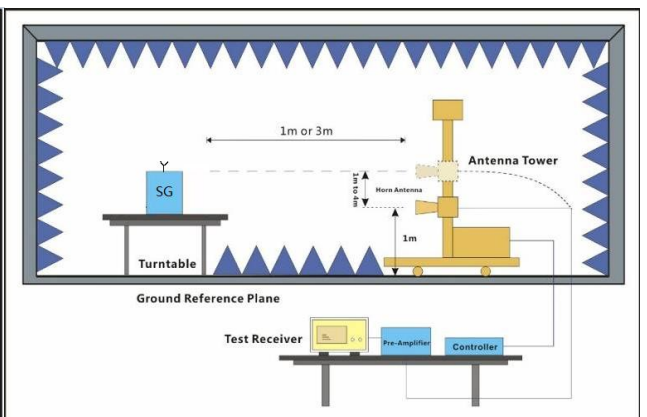
EUT



Substitute Antenna+Signal Generator



EUT



Substitute Antenna+Signal Generator

6.6.3 Measurement Procedure and Data

KDB 971168 D01 V03r01 Section 5.8; ANSI C63.26-2015 Section 5.5

Below 1GHz test procedure as below:

- 1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
 - 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
 - 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
 - 4). Test the EUT in the lowest channel, the middle channel, the Highest channel.
 - 5). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
 - 6). Repeat above procedures until all frequencies measured was complete.
- $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$
 $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8$; where D is the measurement distance in meters

Above 1GHz test procedure as below:

- 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
- 2) Calculate power in dBm by the following formula:
 $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$
 $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8$; where D is the measurement distance in meters
- 3). Test the EUT in the lowest channel, the middle channel the Highest channel
- 4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 5). Repeat above procedures until all frequencies measured was complete

Remark1: Reference test setup 2

Remark2: The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance. At a measurement distance of 1 meter the limit line was increased by $20 \cdot \log(3/1) = 9.54 \text{ dB}$.

Remark: Reference test setup 2

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

$AF = \text{Antenna Factor(dB/m)}$

$\text{Factor} = \text{Cable Factor(dB)} - \text{Preamplifier (dB)}$

$\text{Level} = \text{Reading Level} + AF + \text{Factor} - 95.26$

$\text{Margin} = \text{Limit} - \text{Level}$



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- 2) Scan from 9kHz to 40GHz, The disturbance between 9KHz to 30MHz and 18GHz to 40GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) All modes have been tested, but only the worst case data displayed in this report.



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GSM850-Low channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1648.4	-71.04	-13.00	-58.04	-73.24	3.31	5.51	Horizontal	Pass
2472.6	-68.59	-13.00	-55.59	-70.90	3.44	5.75	Horizontal	Pass
3296.8	-66.57	-13.00	-53.57	-70.32	3.91	7.66	Horizontal	Pass
1648.4	-69.68	-13.00	-56.68	-71.88	3.31	5.51	Vertical	Pass
2472.6	-66.70	-13.00	-53.70	-69.01	3.44	5.75	Vertical	Pass
3296.8	-66.73	-13.00	-53.73	-70.48	3.91	7.66	Vertical	Pass

GSM850-Middle channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1673.2	-71.11	-13.00	-58.11	-73.24	3.31	5.44	Horizontal	Pass
2509.8	-67.97	-13.00	-54.97	-70.36	3.45	5.84	Horizontal	Pass
3346.4	-66.14	-13.00	-53.14	-69.94	3.99	7.79	Horizontal	Pass
1673.2	-70.89	-13.00	-57.89	-73.02	3.31	5.44	Vertical	Pass
2509.8	-67.84	-13.00	-54.84	-70.23	3.45	5.84	Vertical	Pass
3346.4	-66.26	-13.00	-53.26	-70.06	3.99	7.79	Vertical	Pass

GSM850-High channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
1697.6	-72.13	-13.00	-59.13	-74.20	3.31	5.38	Horizontal	Pass
2546.4	-66.68	-13.00	-53.68	-69.15	3.45	5.92	Horizontal	Pass
3395.2	-66.26	-13.00	-53.26	-70.11	4.06	7.91	Horizontal	Pass
1697.6	-71.84	-13.00	-58.84	-73.91	3.31	5.38	Vertical	Pass
2546.4	-66.57	-13.00	-53.57	-69.04	3.45	5.92	Vertical	Pass
3395.2	-65.99	-13.00	-52.99	-69.84	4.06	7.91	Vertical	Pass



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GSM1900-Low channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3700.4	-65.83	-13.00	-52.83	-70.09	4.18	8.44	Horizontal	Pass
5550.6	-62.41	-13.00	-49.41	-67.48	5.38	10.45	Horizontal	Pass
7400.8	-61.42	-13.00	-48.42	-67.42	5.62	11.62	Horizontal	Pass
3700.4	-65.72	-13.00	-52.72	-69.98	4.18	8.44	Vertical	Pass
5550.6	-61.86	-13.00	-48.86	-66.93	5.38	10.45	Vertical	Pass
7400.8	-61.68	-13.00	-48.68	-67.68	5.62	11.62	Vertical	Pass

GSM1900-Middle channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3760.0	-64.91	-13.00	-51.91	-69.26	4.17	8.52	Horizontal	Pass
5640.0	-62.16	-13.00	-49.16	-67.26	5.35	10.45	Horizontal	Pass
7520.0	-59.42	-13.00	-46.42	-65.55	5.63	11.76	Horizontal	Pass
3760.0	-65.12	-13.00	-52.12	-69.47	4.17	8.52	Vertical	Pass
5640.0	-62.09	-13.00	-49.09	-67.19	5.35	10.45	Vertical	Pass
7520.0	-59.63	-13.00	-46.63	-65.76	5.63	11.76	Vertical	Pass

GSM1900-High channel								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3819.6	-65.00	-13.00	-52.00	-69.44	4.16	8.60	Horizontal	Pass
5729.4	-62.21	-13.00	-49.21	-67.35	5.31	10.45	Horizontal	Pass
7639.2	-59.74	-13.00	-46.74	-66.01	5.63	11.90	Horizontal	Pass
3819.6	-64.57	-13.00	-51.57	-69.01	4.16	8.60	Vertical	Pass
5729.4	-62.04	-13.00	-49.04	-67.18	5.31	10.45	Vertical	Pass
7639.2	-59.56	-13.00	-46.56	-65.83	5.63	11.90	Vertical	Pass

Note:

For GSM, all modes have been tested and we found GPRS Test mode has the worst test result. Only record the worst test result.



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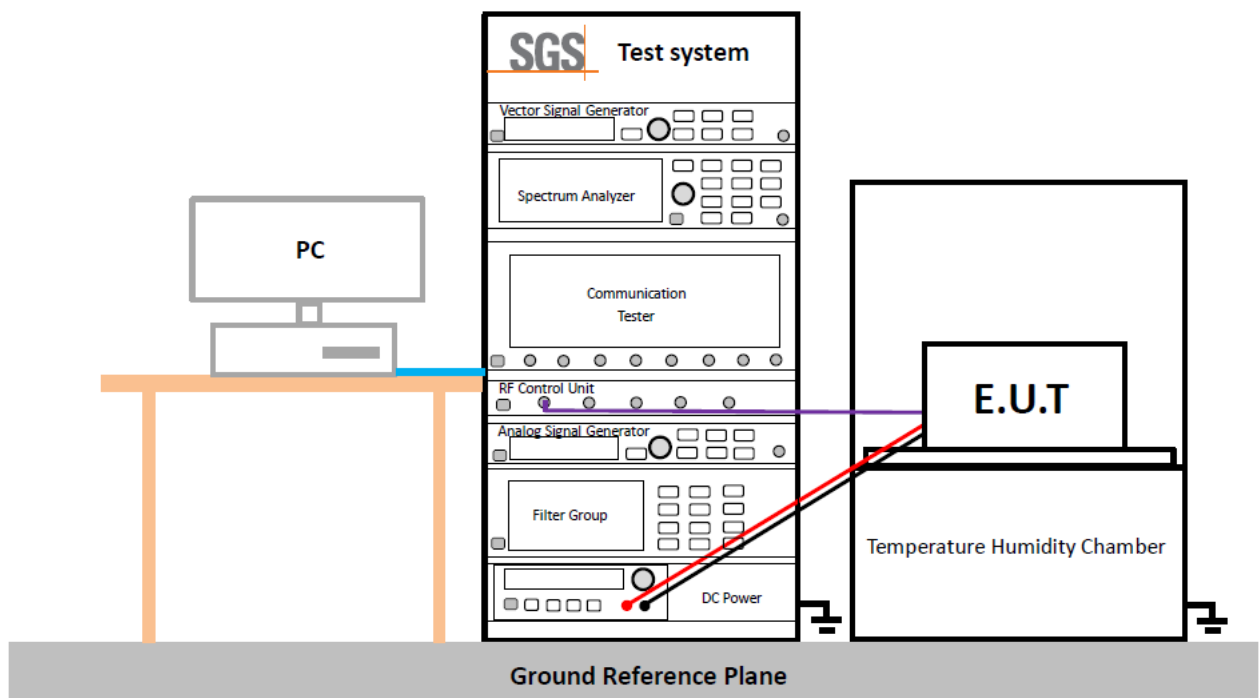
6.7 Frequency stability

Test Requirement: §2.1055, §22.355, §24.235
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq \pm 2.5\text{ppm}$.

6.7.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.7 °C Humidity: 51.9 % RH Atmospheric Pressure: 1020 mbar
 Test mode: 02:TX mode_Keep the EUT in transmitting mode

6.7.2 Test Setup Diagram



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6.7.3 Measurement Data

Frequency stability testing is performed in accordance with the guidelines of KDB 971168 D01 V03r01 Section 9; ANSI C63.26-2015 Section 5.6.5

. The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Please Refer to Appendix A.1, Appendix A.2 for Details



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7 Test Setup Photo

Refer to Appendix - Setup Photos for SZCR2602000721AT

8 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for SZCR2602000721AT

- End of the Report -

