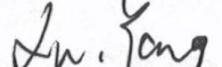


# TEST REPORT

## For GSM

Report No.	CHTW24090014	Report Verification:
Project No.	SHT2408085301W	
FCC ID	2BKRZ-WL432EG25G	
Applicant	Suzhou Inovance Technology Co., Ltd.	
Address	No. 52, Tian E Dang Road, Wuzhong District, 215104, Suzhou City, Jiangsu Province, P.R. China	
Product Name	LTE Module	
Trade Mark	-	
Model No.	EG25-G	
Listed Model(s)	-	
Standard	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part 22 Subpart H FCC CFR Title 47 Part 24 Subpart E	
Date of receipt of test sample	Aug. 28, 2024	
Date of testing	Aug. 30, 2024- Sep. 04, 2024	
Date of issue	Sep. 09, 2024	
Result	Pass	

Compiled by (position+printedname+signature)....:	File administrators Xiaodong Zhao	
Supervised by (position+printedname+signature)....:	Project Engineer Xiaodong Zhao	
Approved by (position+printedname+signature)....:	Manager Xu Yang	

Testing Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.
Address	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China

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*The test report merely correspond to the test sample.*

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## 1. TEST STANDARDS AND REPORT VERSION

### 1.1. Applicable Standards

The tests were performed according to following standards:

[FCC CFR Title 47 Part 2](#): Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

[FCC CFR Title 47 Part 22 Subpart H](#): Cellular Radiotelephone Service

[FCC CFR Title 47 Part 24 Subpart E](#): Broadband PCS

[ANSI C63.26-2015](#): American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

[KDB 971168 D01 Power Meas License Digital Systems v03](#): MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

### 1.2. Report version information

Revision No.	Date of issue	Description
N/A	2024-09-09	Original

## 2. TEST DESCRIPTION

Section	Test Item	Section in CFR 47	Result #1	Test Engineer
5.1	Radiated Spurious Emissions	Part 2.1053 Part 22.917 Part 24.238	Pass	Yifan Wang
5.2	Radiated Band Edge	Part 2.1053 Part 22.917 Part 24.238	Pass	Yifan Wang

Note:

- 1) #1: The test result does not include measurement uncertainty value.

### 3. **SUMMARY**

#### 3.1. Client Information

Applicant:	Suzhou Inovance Technology Co., Ltd.
Address:	No. 52, Tian E Dang Road, Wuzhong District, 215104, Suzhou City, Jiangsu Province, P.R. China
Manufacturer:	Suzhou Inovance Technology Co., Ltd.
Address:	No. 52, Tian E Dang Road, Wuzhong District, 215104, Suzhou City, Jiangsu Province, P.R. China

#### 3.2. Product Description

Module information:	
Product Name:	LTE Module
Trade Mark:	-
Model No.:	EG25-G
Listed Model(s):	-

#### 3.3. Radio Specification Description

Support Operating Band:	<input checked="" type="checkbox"/> GSM850	<input checked="" type="checkbox"/> PCS1900		
Operating Frequency Range:	Please refer to note #2			
Support Network:	<input checked="" type="checkbox"/> GSM		<input checked="" type="checkbox"/> GPRS	
Modulation type:	<input checked="" type="checkbox"/> GMSK		<input checked="" type="checkbox"/> 8PSK	
GPRS Multislot Class:	<input type="checkbox"/> 8	<input type="checkbox"/> 10	<input type="checkbox"/> 12	<input checked="" type="checkbox"/> 33
EGPRS Multislot Class:	<input type="checkbox"/> 8	<input type="checkbox"/> 10	<input type="checkbox"/> 12	<input checked="" type="checkbox"/> 33
Antenna type:	linear antenna			
Antenna gain #3:	GSM850: 2.066dBi	PCS1900: 1.496dBi		

##### Note:

- means that this feature is supported;  means that this feature is not supported
- #2: Operating frequency range is as follow:

Band	Uplink frequency	Downlink frequency
GSM850	824.20 - 848.80MHz	869.20 - 893.80MHz
PCS1900	1850.20 - 1909.80MHz	1930.20 - 1989.80MHz

- #3: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, HTW lab has not verified the authenticity of its information

### 3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China	
Contact information:	Phone: 86-755-26715499 E-mail: <a href="mailto:cs@szhtw.com.cn">cs@szhtw.com.cn</a> <a href="http://www.szhtw.com.cn">http://www.szhtw.com.cn</a>	
Qualifications	Type	Accreditation Number
	FCC Registration Number	762235
	FCC Designation Number	CN1181

## 4. TEST CONFIGURATION

### 4.1. Test frequency list

GSM850		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

### 4.2. Test mode

Test mode	Link mode
-----------	-----------

- 1) Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems and ANSI C63.26 with maximum output power.
- 2) Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

All modes and data rates and positions were investigated, test modes are chosen to be reported as the worst case configuration below:

Band	Radiated test items
GSM 850	<input checked="" type="checkbox"/> GSM link
PCS 1900	<input checked="" type="checkbox"/> GSM link

### 4.3. Test sample information

Test item	HTW sample no.
Radiated test items	YPHT24080853001

Note:

Radiated test items: Radiated Spurious Emission, Radiated Band Edge

#### 4.4. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Whether support unit is used?				
<input checked="" type="checkbox"/> No				
Item	Equipment	Trade Name	Model No.	Other
1				
2				

#### 4.5. Testing environmental condition

Voltage	VN=Nominal Voltage	DC 24V
Temperature	TN=Normal Temperature	25 °C
Humidity	30~60 %	
Air Pressure	950-1050 hPa	

#### 4.6. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	Radiated Spurious Emission	4.54dB for 30MHz-1GHz 5.10dB for above 1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

## 4.7. Equipments Used during the Test

● Radiated Spurious Emission							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	C11121	2023/4/17	2026/4/16
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2024/8/12	2025/8/11
●	Spectrum Analyzer	R&S	HTWE0385	N9020A	MY54486658	2024/8/12	2025/8/11
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0123	VULB9163	538	2024/4/8	2027/4/7
●	Horn Antenna	SCHWARZBECK	HTWE0126	BBHA 9120D	1011	2023/2/14	2026/2/13
●	Broadband Horn Antenna	SCHWARZBECK	HTWE0103	BBHA9170	BBHA9170472	2023/2/20	2026/2/19
●	Pre-Amplifier	CD	HTWE0071	PAP-0102	12004	2024/6/6	2025/6/5
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0551	SCU18F	100855	2024/6/6	2025/6/5
●	Test Software	Audix	N/A	E3	N/A	N/A	N/A

● Auxiliary Equipment							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Radio communication tester	R&S	HTWE0287	CMW500	137688-Lv	2024/08/12	2025/08/11
●	High pass filter	Wainwright	HTWE0297	WHKX3.0/18G-10SS	38	2024/03/26	2025/03/25
●	Band Stop filter	-	HTWE0039	N/A	N/A	2024/01/23	2025/01/24

## 5. TEST CONDITIONS AND RESULTS

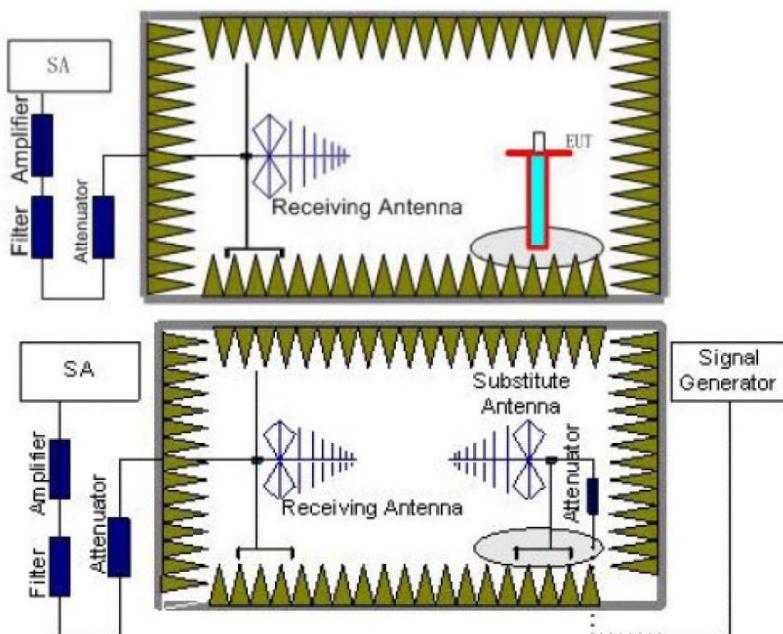
### 5.1. Radiated Spurious Emission

#### LIMIT

Part 22.917&Part 24.238:

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.

#### TEST CONFIGURATION



#### 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

Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peak, 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.
7. 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:
$$Pe = Ps(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$
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:
$$\text{gain (dBd)} = \text{gain (dBi)} - 2.15 \text{ dB}.$$
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.

### **TEST MODE**

Please refer to the clause 4.2

### **TEST RESULTS**

Passed       Not Applicable

GSM850										
Test channel:		128			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-62.05	17.66	2.26	30.44	-72.57	-13.00	-59.57	Peak	
2	374.67	-66.38	24.80	3.80	30.16	-67.94	-13.00	-54.94	Peak	
3	3249.76	-60.05	40.91	4.82	40.80	-55.12	-13.00	-42.12	Peak	
4	4996.69	-63.84	44.35	6.00	40.20	-53.69	-13.00	-40.69	Peak	
5	6662.01	-64.68	46.56	7.37	39.29	-50.04	-13.00	-37.04	Peak	
6	10778.21	-67.90	52.37	8.89	40.48	-47.12	-13.00	-34.12	Peak	
Test channel:		128			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-63.91	21.38	2.26	30.44	-70.71	-13.00	-57.71	Peak	
2	374.67	-67.35	24.67	3.80	30.16	-69.04	-13.00	-56.04	Peak	
3	3249.76	-61.77	40.99	4.82	40.80	-56.76	-13.00	-43.76	Peak	
4	4996.69	-62.47	44.50	6.00	40.20	-52.17	-13.00	-39.17	Peak	
5	8125.22	-64.46	47.65	8.06	39.91	-48.66	-13.00	-35.66	Peak	
6	10453.95	-68.02	52.16	8.96	40.17	-47.07	-13.00	-34.07	Peak	
Test channel:		190			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-64.84	17.66	2.26	30.44	-75.36	-13.00	-62.36	Peak	
2	374.67	-68.77	24.80	3.80	30.16	-70.33	-13.00	-57.33	Peak	
3	4996.69	-64.31	44.35	6.00	40.20	-54.16	-13.00	-41.16	Peak	
4	7413.73	-66.16	48.49	7.72	39.91	-49.86	-13.00	-36.86	Peak	
5	10295.50	-67.77	51.17	8.84	40.08	-47.84	-13.00	-34.84	Peak	
6	12685.25	-67.65	52.75	10.43	40.78	-45.25	-13.00	-32.25	Peak	
Test channel:		190			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-64.93	21.38	2.26	30.44	-71.73	-13.00	-58.73	Peak	
2	374.67	-69.80	24.67	3.80	30.16	-71.49	-13.00	-58.49	Peak	
3	4996.69	-63.41	44.50	6.00	40.20	-53.11	-13.00	-40.11	Peak	
4	7264.28	-66.77	48.62	7.58	39.75	-50.32	-13.00	-37.32	Peak	
5	9157.86	-66.83	49.50	8.46	39.94	-48.81	-13.00	-35.81	Peak	
6	11226.25	-67.55	52.98	8.98	40.47	-46.06	-13.00	-33.06	Peak	

Test channel:		251		Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	143.46	-64.15	17.66	2.26	30.44	-74.67	-13.00	-61.67	Peak
2	374.67	-69.88	24.80	3.80	30.16	-71.44	-13.00	-58.44	Peak
3	4996.69	-63.18	44.35	6.00	40.20	-53.03	-13.00	-40.03	Peak
4	7045.74	-66.42	47.70	7.37	39.51	-50.86	-13.00	-37.86	Peak
5	10348.05	-68.38	51.30	8.88	40.11	-48.31	-13.00	-35.31	Peak
6	11515.68	-68.49	52.97	9.22	40.22	-46.52	-13.00	-33.52	Peak

Test channel:		251		Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	143.46	-63.66	21.38	2.26	30.44	-70.46	-13.00	-57.46	Peak
2	374.67	-67.69	24.67	3.80	30.16	-69.38	-13.00	-56.38	Peak
3	4181.16	-64.65	42.44	5.68	40.33	-56.86	-13.00	-43.86	Peak
4	4996.69	-62.72	44.50	6.00	40.20	-52.42	-13.00	-39.42	Peak
5	7394.88	-66.12	48.59	7.70	39.90	-49.73	-13.00	-36.73	Peak
6	11169.24	-67.97	52.93	8.94	40.53	-46.63	-13.00	-33.63	Peak

PCS1900										
Test channel:			512			Polarization:			Horizontal	
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-63.37	17.66	2.26	30.44	-73.89	-13.00	-60.89	Peak	
2	400.56	-71.97	25.43	3.95	29.80	-72.39	-13.00	-59.39	Peak	
3	4524.47	-63.84	43.26	5.87	40.41	-55.12	-13.00	-42.12	Peak	
4	5689.36	-65.58	43.85	6.60	39.45	-54.58	-13.00	-41.58	Peak	
5	7643.68	-65.70	47.69	7.90	39.97	-50.08	-13.00	-37.08	Peak	
6	10971.98	-66.64	52.84	8.81	40.67	-45.66	-13.00	-32.66	Peak	
Test channel:			512			Polarization:			Vertical	
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-63.60	21.38	2.26	30.44	-70.40	-13.00	-57.40	Peak	
2	400.56	-71.66	25.25	3.95	29.80	-72.26	-13.00	-59.26	Peak	
3	3815.03	-63.25	41.98	5.27	40.57	-56.57	-13.00	-43.57	Peak	
4	6331.33	-66.57	46.31	6.85	39.20	-52.61	-13.00	-39.61	Peak	
5	7099.75	-64.82	48.00	7.42	39.57	-48.97	-13.00	-35.97	Peak	
6	11486.41	-65.84	53.20	9.19	40.21	-43.66	-13.00	-30.66	Peak	
Test channel:			661			Polarization:			Horizontal	
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-63.42	17.66	2.26	30.44	-73.94	-13.00	-60.94	Peak	
2	400.56	-73.17	25.43	3.95	29.80	-73.59	-13.00	-60.59	Peak	
3	3249.76	-63.07	40.91	4.82	40.80	-58.14	-13.00	-45.14	Peak	
4	4996.69	-64.17	44.35	6.00	40.20	-54.02	-13.00	-41.02	Peak	
5	7470.56	-66.25	48.22	7.76	39.92	-50.19	-13.00	-37.19	Peak	
6	11283.55	-67.89	52.95	9.03	40.42	-46.33	-13.00	-33.33	Peak	
Test channel:			661			Polarization:			Vertical	
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	143.46	-64.84	21.38	2.26	30.44	-71.64	-13.00	-58.64	Peak	
2	474.21	-76.36	25.51	4.33	29.79	-76.31	-13.00	-63.31	Peak	
3	4065.71	-63.98	41.86	5.52	40.25	-56.85	-13.00	-43.85	Peak	
4	4996.69	-63.40	44.50	6.00	40.20	-53.10	-13.00	-40.10	Peak	
5	7227.39	-67.26	48.63	7.54	39.71	-50.80	-13.00	-37.80	Peak	
6	11283.55	-67.78	53.03	9.03	40.42	-46.14	-13.00	-33.14	Peak	

Test channel:		810		Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	143.46	-64.18	17.66	2.26	30.44	-74.70	-13.00	-61.70	Peak
2	264.52	-73.47	22.95	3.15	30.22	-77.59	-13.00	-64.59	Peak
3	4490.05	-64.97	43.17	5.87	40.44	-56.37	-13.00	-43.37	Peak
4	7376.08	-66.66	48.47	7.68	39.88	-50.39	-13.00	-37.39	Peak
5	9859.47	-67.60	50.54	8.60	39.87	-48.33	-13.00	-35.33	Peak
6	11486.41	-66.15	52.98	9.19	40.21	-44.19	-13.00	-31.19	Peak

Test channel:		810		Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	143.46	-63.99	21.38	2.26	30.44	-70.79	-13.00	-57.79	Peak
2	400.56	-73.15	25.25	3.95	29.80	-73.75	-13.00	-60.75	Peak
3	4996.69	-64.21	44.50	6.00	40.20	-53.91	-13.00	-40.91	Peak
4	7547.01	-66.24	48.34	7.83	39.94	-50.01	-13.00	-37.01	Peak
5	10723.47	-67.49	52.53	8.91	40.42	-46.47	-13.00	-33.47	Peak
6	11312.31	-66.55	53.05	9.05	40.39	-44.84	-13.00	-31.84	Peak

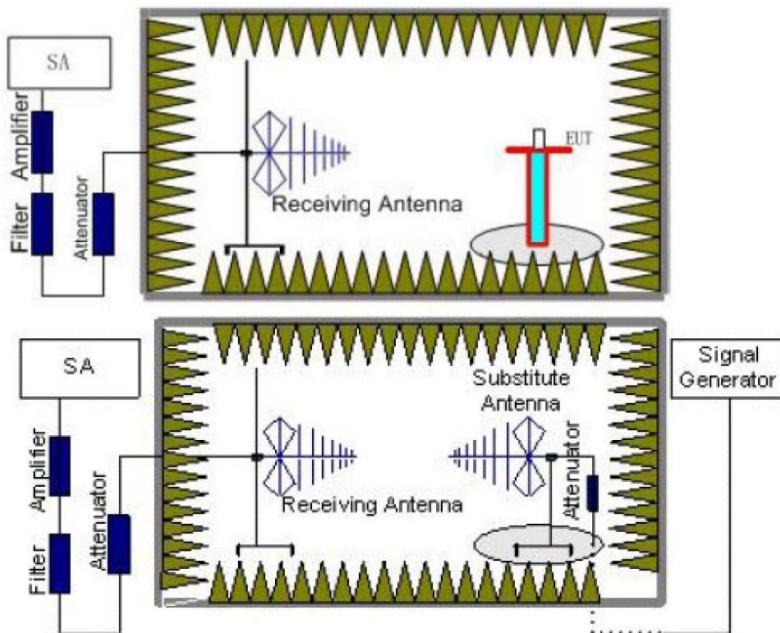
## 5.2. Radiated Band Edge

### LIMIT

Part 22.917&Part 24.238:

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.

### TEST CONFIGURATION



### 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. 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
5. 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.
6. 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.
7. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT

- is removed and replaced by the substitution antenna.
8. 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.
  9. 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).
  10. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
  11. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
$$Pe = Ps(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$
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.*
  12. 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:
$$\text{gain (dBd)} = \text{gain (dBi)} - 2.15 \text{ dB}.$$
If necessary, the antenna gain can be calculated from calibrated antenna factor information
  13. Provide the complete measurement results as a part of the test report.

## **TEST MODE**

Please refer to the clause 4.2

## **TEST RESULTS**

Passed       Not Applicable

GSM850										
Test channel:		128			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	824.00	-81.77	29.93	5.89	0.00	-45.95	-13.00	-32.95	Peak	
Test channel:		128			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	823.95	-89.01	29.80	5.89	0.00	-53.32	-13.00	-40.32	Peak	

Test channel:		251			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	849.00	-85.56	29.77	6.00	0.00	-49.79	-13.00	-36.79	Peak	
Test channel:		251			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	849.00	-82.19	29.83	6.00	0.00	-46.36	-13.00	-33.36	Peak	

PCS1900										
Test channel:		512			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	1850.00	-88.05	37.34	3.54	0.00	-47.17	-13.00	-34.17	Peak	
Test channel:		512			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	1850.00	-75.87	36.95	3.54	0.00	-35.38	-13.00	-22.38	Peak	

Test channel:		810			Polarization:			Horizontal		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	1910.00	-86.75	38.07	3.59	0.00	-45.09	-13.00	-32.09	Peak	
Test channel:		810			Polarization:			Vertical		
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark	
1	1910.00	-82.51	37.51	3.59	0.00	-41.41	-13.00	-28.41	Peak	

-----End of the report-----