

## TEST REPORT

**Application No.:** SHCR2206001265AT  
**FCC ID:** 2AMK9-CFXBLE-1  
**IC:** 22897-CFXBLE1  
**Applicant:** Confidex Oy  
**Address of Applicant:** Lumpeenkatu 6 33900, Tampere Finland  
**Manufacturer:** Confidex Oy  
**Address of Manufacturer:** Lumpeenkatu 6 33900, Tampere Finland  
**Equipment Under Test (EUT):**  
**EUT Name:** 2.4 GHz ISM Band Transceiver Tag  
**Model No.:** CFXBLE-1  
**HVIN:** CFXBLE-1C  
**Trade Mark:** Confidex Viking, Confidex Viking Tough, Confidex Viking Slim  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.247  
RSS-247 Issue 2, February 2017  
RSS-Gen Issue 5 April 2018 Amendment 2  
**Date of Receipt:** 2022-06-23  
**Date of Test:** 2022-07-22 to 2022-07-24  
**Date of Issue:** 2022-08-16

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Parlam Zhan*

Parlam Zhan  
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-08-16	/

Authorized for issue by:			
		Bill Wu	
		Bill Wu/Project Engineer	
		Parlam Zhan	
		Parlam Zhan/Reviewer	



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## 2 Test Summary

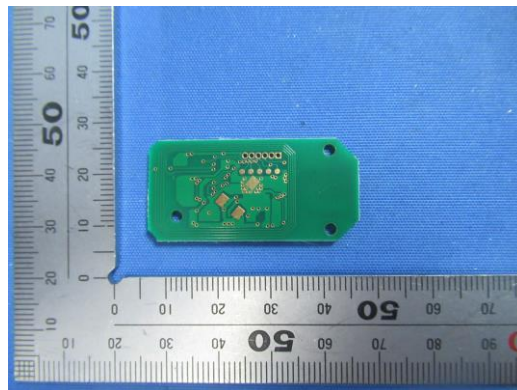
Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Remark: The main differences with original are these physical modifications:

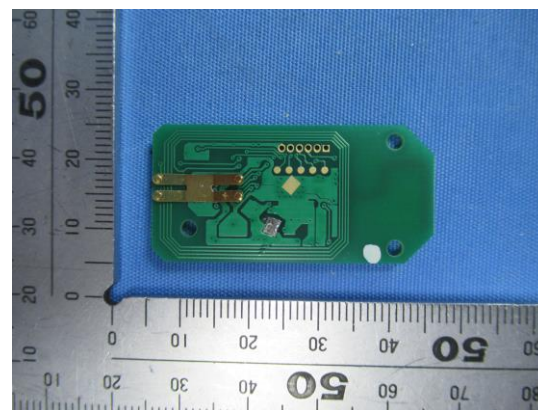
1. Power supply arrangement with one replaceable battery;
2. Different housing to mount new battery arrangement with existing PCB design, So we just fully retest RSE and power for this product, other test data reference to original report: 1-9721/19-01-02-B.

Updated as below:

Original:



New:



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 3V By CR2477 lithium battery
Test voltage:	DC 3V
Modulation Type:	GFSK
Number of Channels:	81
Channel spacing:	1MHz
Operation Frequency:	2401MHz-2481MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.15dBi (Provided by manufacturer)
S/N:	3004057
Firmware Version:	V10.0

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	L460	-
Serial port adapter plate	-	Test Plate 3	-

### 4.3 Power level setting using in test:

Channel	Power
2401	4
2440	4
2481	4



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#### 4.4 Measurement Uncertainty & Decision Rule

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10 <sup>-8</sup>
2	Timeout	2s
3	Duty cycle	0.4%
4	Occupied Bandwidth	3%
5	RF conducted power	0.6dB
6	RF power density	2.9dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

#### 4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

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Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc ) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).



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#### 4.6 Test Facility

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

• **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

• **VCCI (Member No.: 3061)**

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#### 4.7 Deviation from Standards

None

#### 4.8 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
<b>RF Conducted Test</b>					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2021-08-30	2022-08-29
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2021-08-13	2022-08-12
Signal Generator	R&S	SMR20	SHEM006-1	2021-08-13	2022-08-12
Signal Generator	Agilent	N5182A	SHEM182-1	2021-08-13	2022-08-12
Communication Tester	R&S	CMW270	SHEM183-1	2021-07-28	2022-07-27
Communication Tester	R&S	CMW270	SHEM183-1	2022-07-28	2023-07-27
Communication Tester	R&S	CMW500	SHEM183-2	2022-04-01	2023-03-31
Switcher	Tonscend	JS0806	SHEM184-1	2021-08-13	2022-08-12
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2021-08-13	2022-08-12
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2020-04-15	2023-04-14
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2021-12-20	2022-12-19
DC Power Supply	MCH	MCH-303A	SHEM210-1	2021-12-20	2022-12-19
Conducted test Cable	/	RF01~RF04	/	2021-12-20	2022-12-19
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
<b>RF Radiated Test</b>					
EMI test Receiver	R&S	ESU40	SHEM051-1	2021-12-20	2022-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Communication Tester	R&S	CMW500	SHEM183-2	2022-04-01	2023-03-31
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2021-12-20	2022-12-19
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2021-09-11	2023-09-10
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2021-05-07	2023-05-06
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2021-06-09	2023-06-08
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2021-09-18	2023-09-17
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2021-09-18	2023-09-17
Pre-Amplifier	HP	8447D	SHEM236-1	2022-05-27	2023-05-26
Pre-Amplifier	PANSHAN	LNA 1-18G	SHEM235-1	2022-05-27	2023-05-26
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2021-12-20	2022-12-19
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24
RE test Cable	/	RE01, RE02, RE06	/	2022-01-07	2023-01-06
Test software	ESE	E3	Version: 6.111221a	/	/



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## 6 Radio Spectrum Matter Test Results

### 6.1 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for $\geq 50$ hopping channels
	0.25 for $25 \leq$ hopping channels $< 50$
	1 for digital modulation
2400-2483.5	1 for $\geq 75$ non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

#### 6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

Humidity: 63.1 % RH

Atmospheric Pressure: 1010 mbar

#### 6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.



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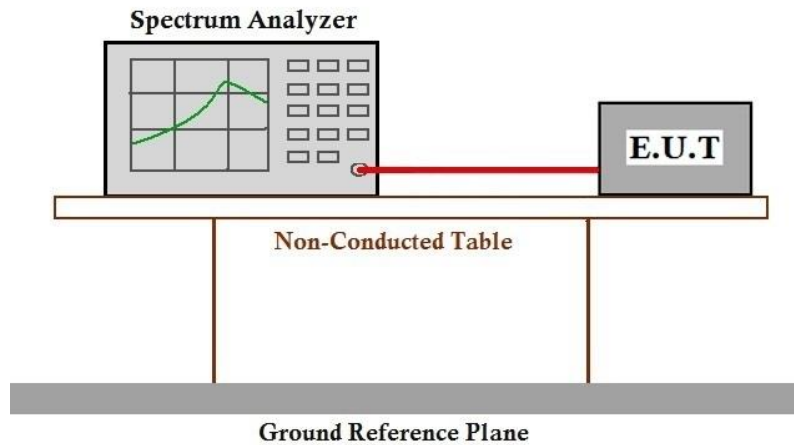
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### 6.1.3 Test Setup Diagram



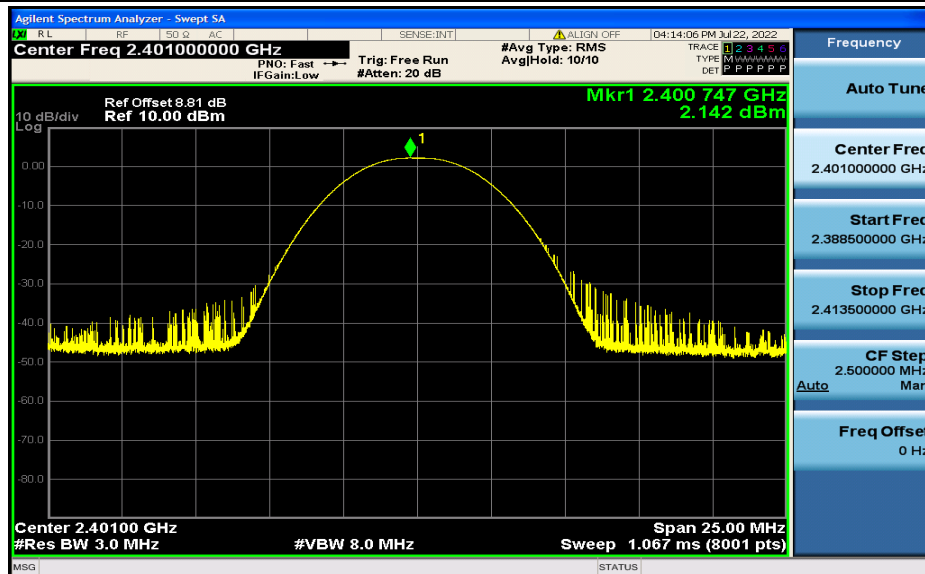
### 6.1.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

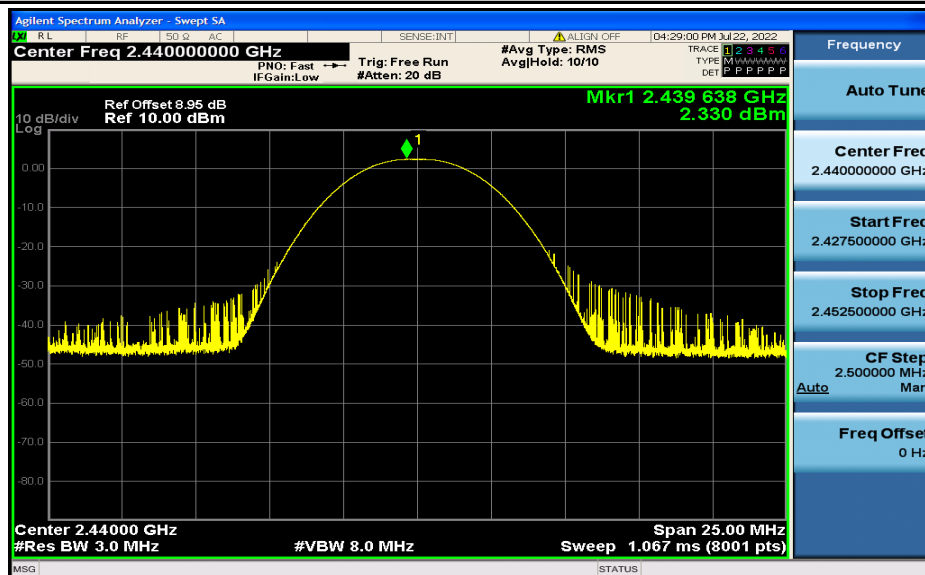
Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict
BLE	2401	2.14	30	PASS
BLE	2440	2.33	30	PASS
BLE	2481	1.74	30	PASS



### Maximum peak conducted output power\_BLE\_2401



### Maximum peak conducted output power\_BLE\_2440



### Maximum peak conducted output power\_BLE\_2481



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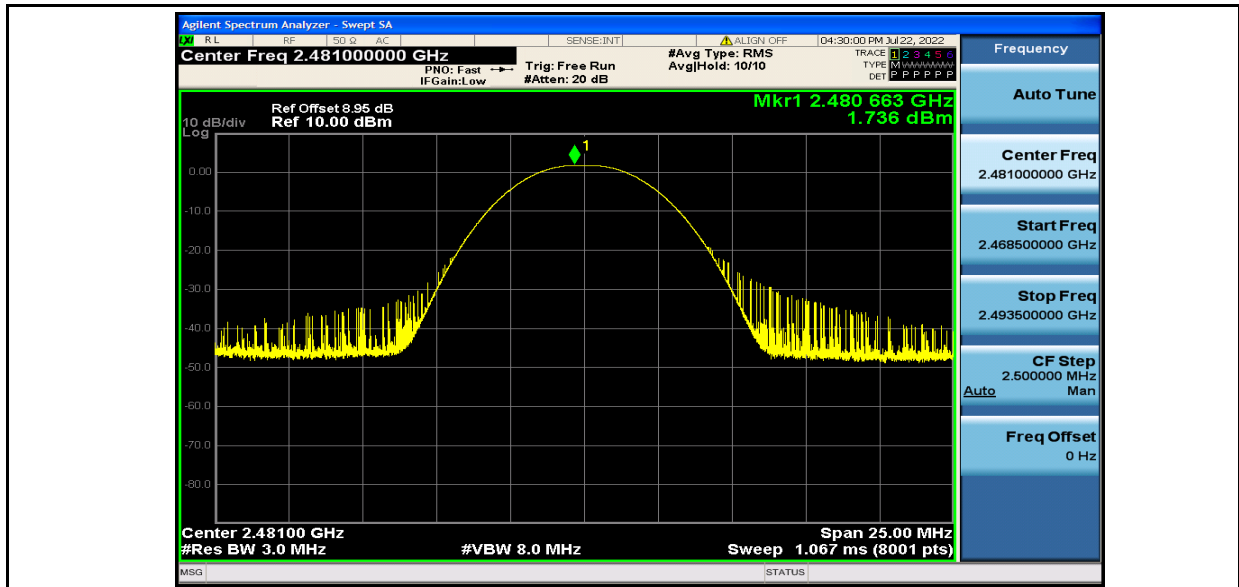
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## 6.2 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 62.8 % RH Atmospheric Pressure: 1010 mbar

### 6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.



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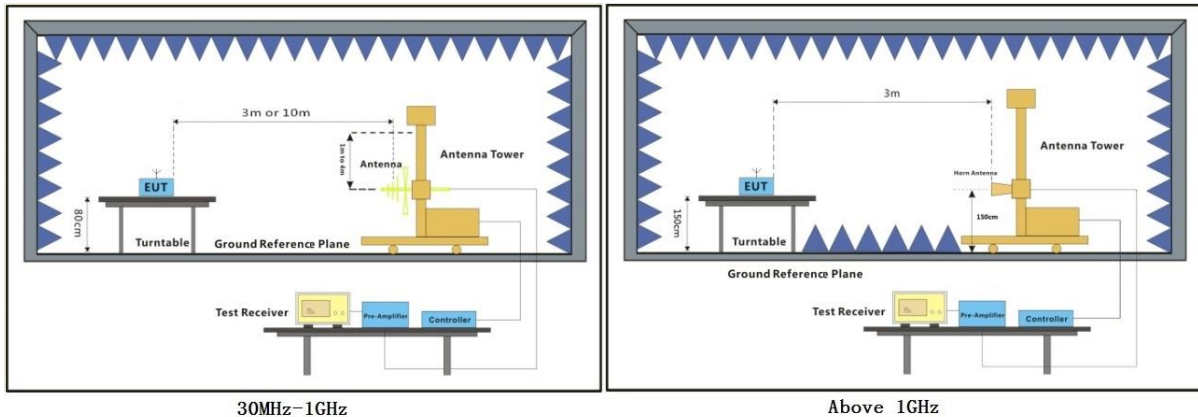
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### 6.2.3 Test Setup Diagram



### 6.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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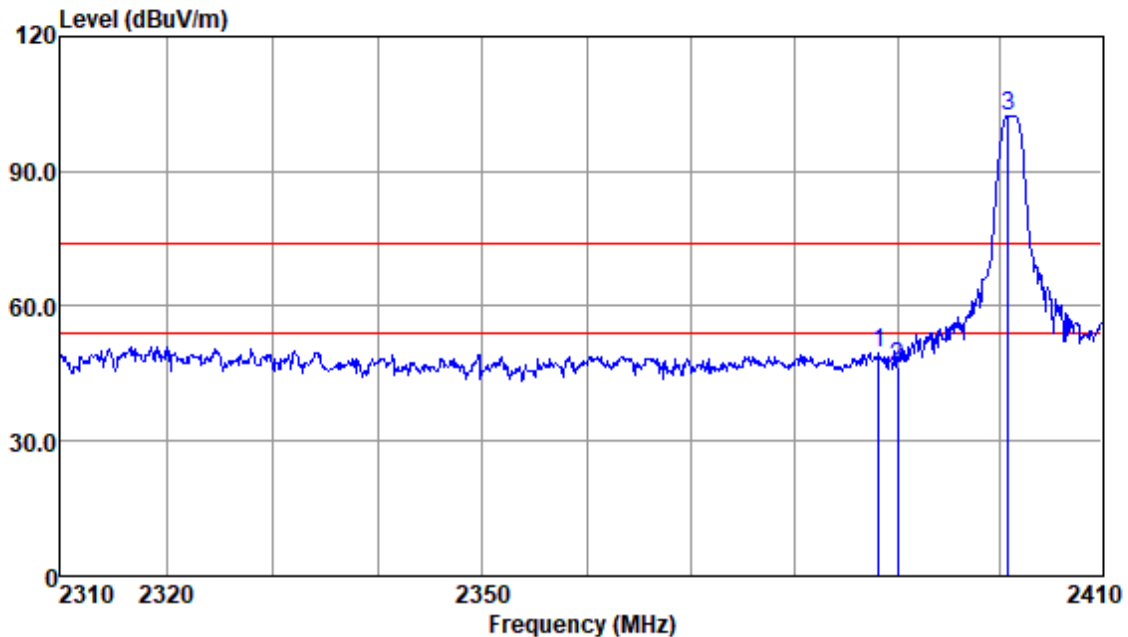
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2388.14	54.13	26.03	4.60	35.18	49.58	74.00	-24.42	Peak
2390.00	51.24	26.03	4.60	35.18	46.69	74.00	-27.31	Peak
2400.83	106.94	26.06	4.62	35.19	102.43	74.00	28.43	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



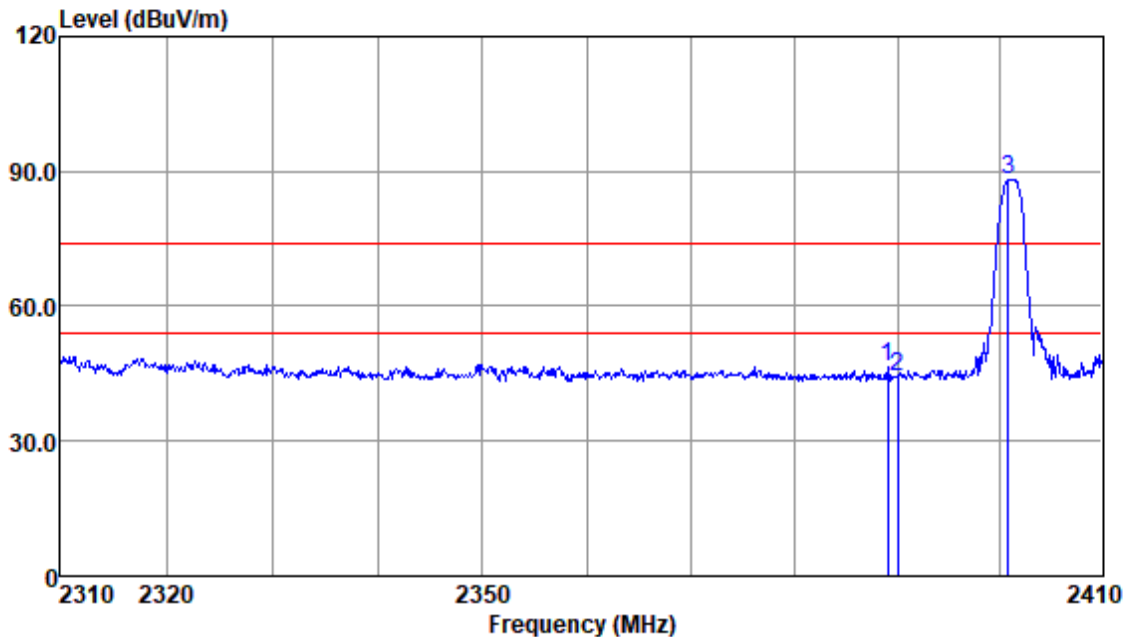
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2389.05	51.14	26.03	4.60	35.18	46.59	74.00	-27.41	Peak
2390.00	48.76	26.03	4.60	35.18	44.21	74.00	-29.79	Peak
2400.83	92.55	26.06	4.62	35.19	88.04	74.00	14.04	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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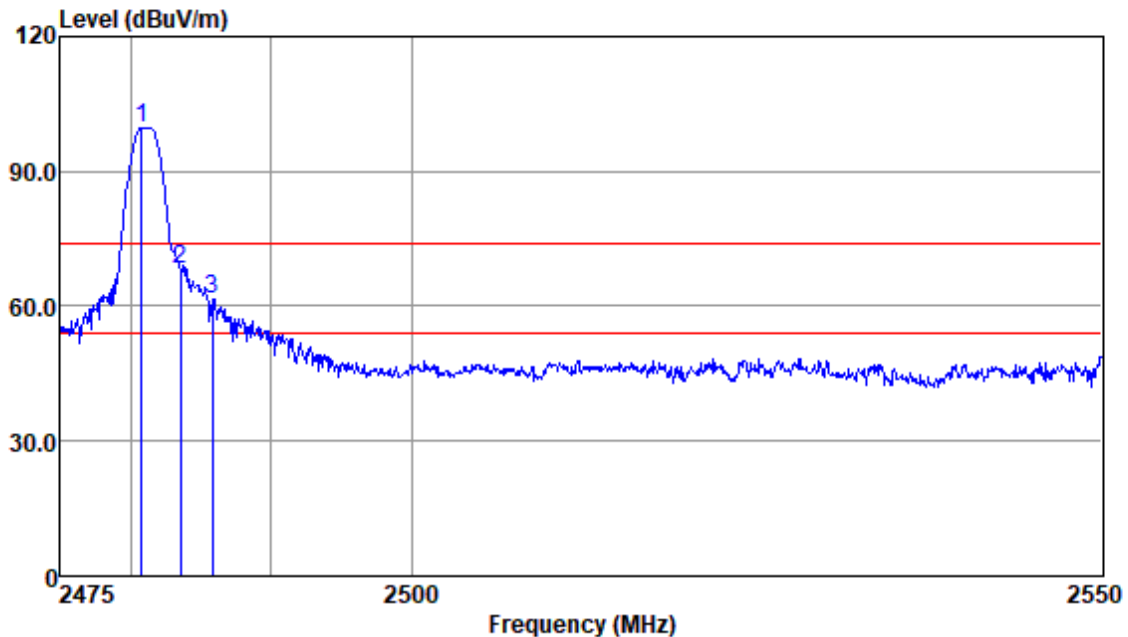
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



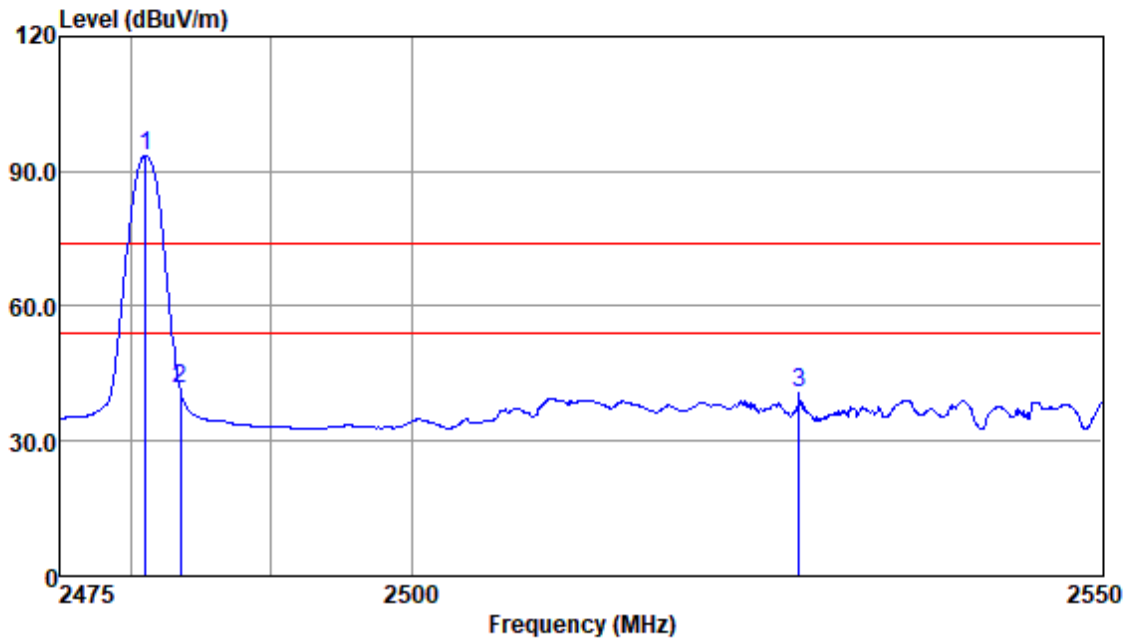
Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2480.77	104.02	26.18	4.76	35.25	99.71	74.00	25.71	Peak
2483.50	72.57	26.18	4.78	35.26	68.27	74.00	-5.73	Peak
2485.81	65.92	26.19	4.78	35.26	61.63	74.00	-12.37	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



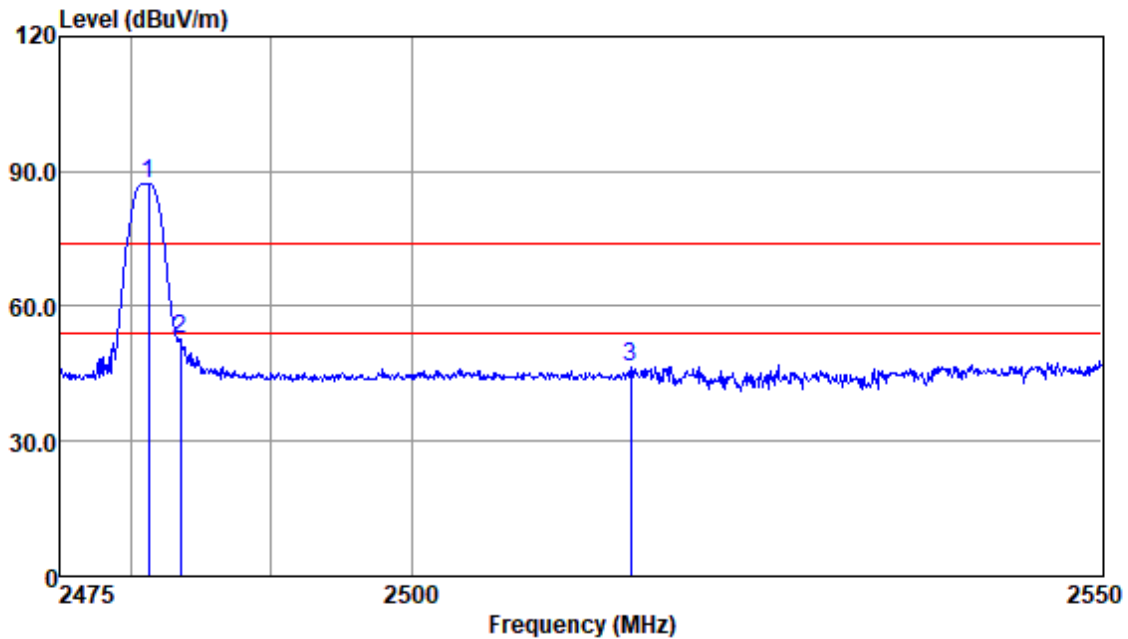
Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2481.07	97.90	26.18	4.76	35.25	93.59	54.00	39.59	Average
2483.50	45.79	26.18	4.78	35.26	41.49	54.00	-12.51	Average
2527.94	44.69	26.29	4.85	35.31	40.52	54.00	-13.48	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor



Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2481.29	91.51	26.18	4.76	35.25	87.20	74.00	13.20	Peak
2483.50	56.78	26.18	4.78	35.26	52.48	74.00	-21.52	Peak
2515.75	50.54	26.24	4.83	35.29	46.32	74.00	-27.68	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor



### 6.3 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

#### 6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

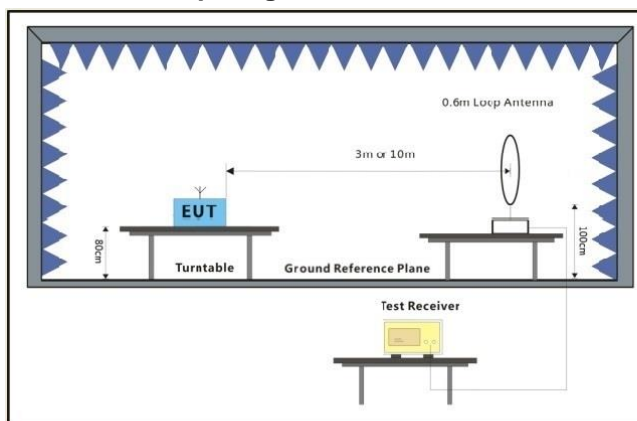
Humidity: 62.7 % RH

Atmospheric Pressure: 1010 mbar

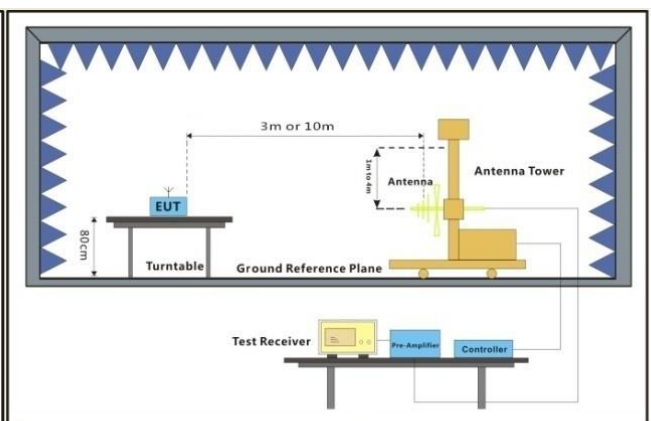
#### 6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

#### 6.3.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz



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#### 6.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points 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. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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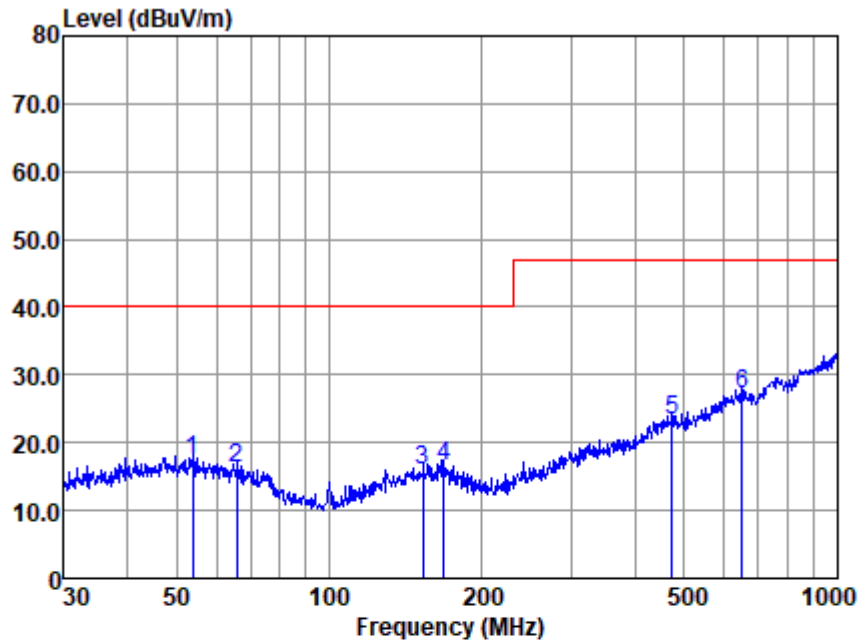
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Test Mode: 01; Polarity: Horizontal



Antenna Polarity :HORIZONTAL  
EUT/Project :1265AT  
Test mode :01

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	53.693	28.52	13.73	1.23	26.20	17.28	40.00	-22.72	QP
2	65.573	28.46	12.48	1.39	26.14	16.19	40.00	-23.81	QP
3	153.200	27.61	13.27	2.13	27.08	15.93	40.00	-24.07	QP
4	168.414	28.11	13.05	2.29	26.97	16.48	40.00	-23.52	QP
5	473.835	29.18	17.42	3.94	27.15	23.39	47.00	-23.61	QP
6	651.942	29.38	20.46	4.51	27.23	27.12	47.00	-19.88	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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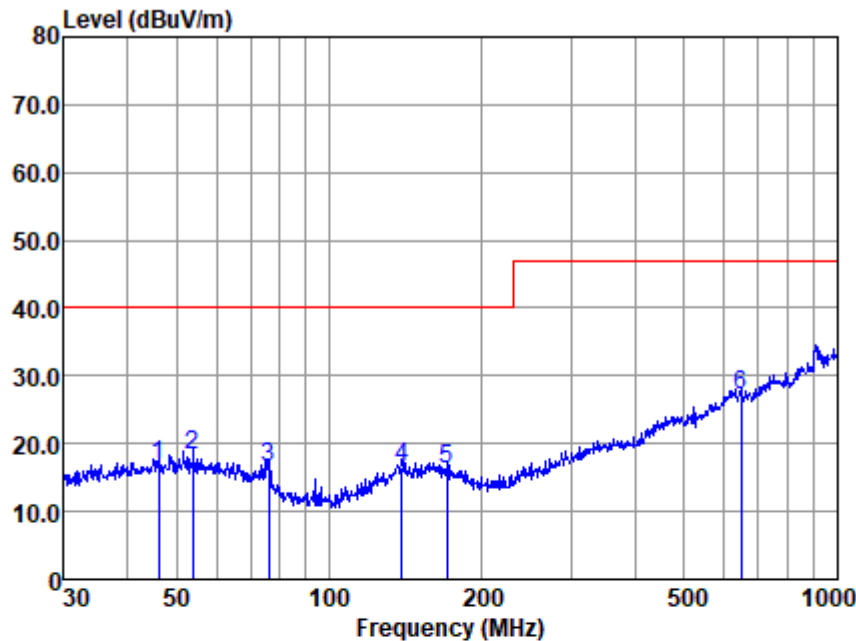
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Test Mode: 01; Polarity: Vertical



Antenna Polarity :VERTICAL  
EUT/Project :1265AT  
Test mode :01

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	46.016	28.01	13.79	1.16	26.20	16.76	40.00	-23.24	QP
2	53.882	29.40	13.73	1.23	26.20	18.16	40.00	-21.84	QP
3	75.977	30.68	10.39	1.55	26.10	16.52	40.00	-23.48	QP
4	138.874	29.03	12.65	2.05	27.10	16.63	40.00	-23.37	QP
5	170.793	28.10	12.87	2.30	26.94	16.33	40.00	-23.67	QP
6	647.386	29.21	20.53	4.51	27.20	27.05	47.00	-19.95	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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## 6.4 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

### 6.4.1 E.U.T. Operation

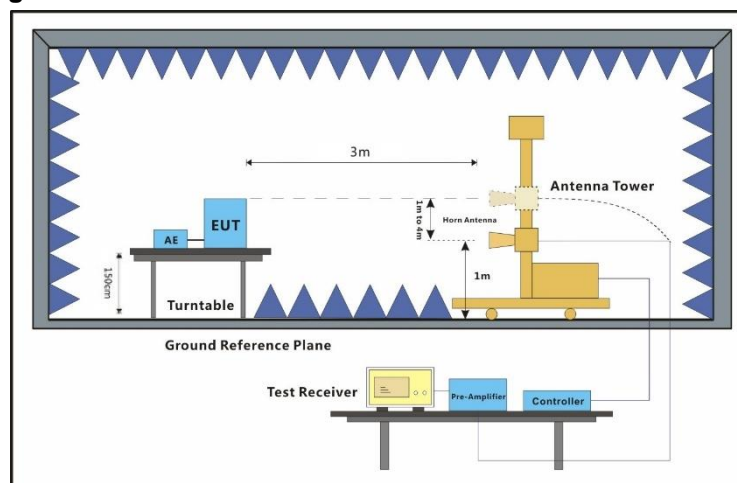
Operating Environment:

Temperature: 24.5 °C Humidity: 62.5 % RH Atmospheric Pressure: 1010 mbar

### 6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

### 6.4.3 Test Setup Diagram



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#### 6.4.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points 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. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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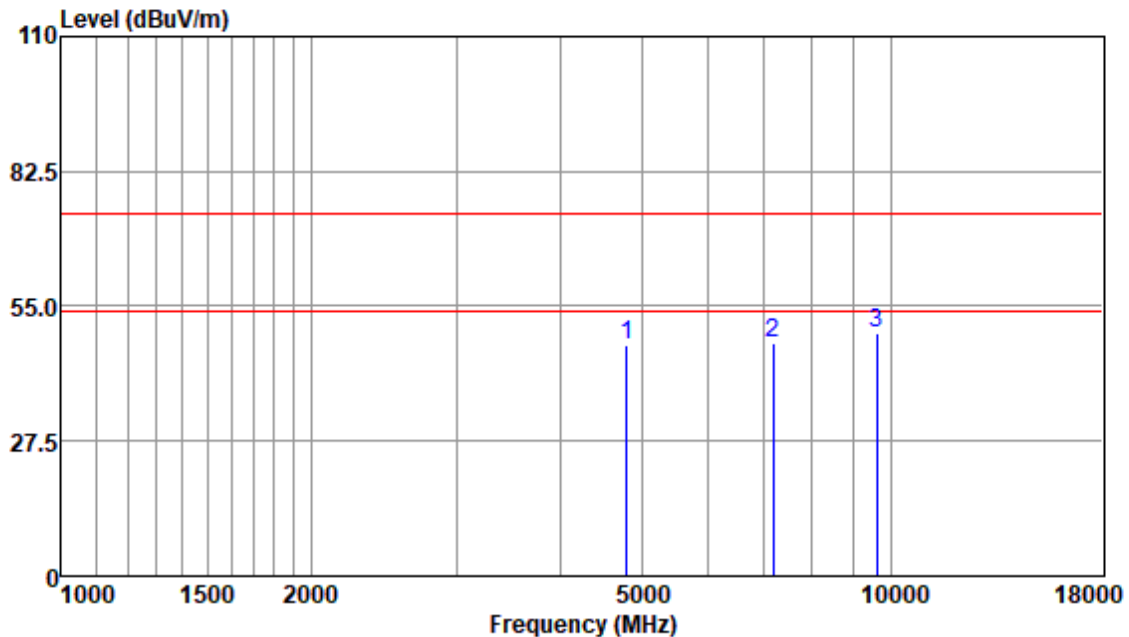
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4802.00	42.87	33.72	7.46	36.79	47.26	74.00	-26.74	Peak
7203.00	39.03	36.28	7.79	35.53	47.57	74.00	-26.43	Peak
9604.00	36.63	37.70	8.57	33.58	49.32	74.00	-24.68	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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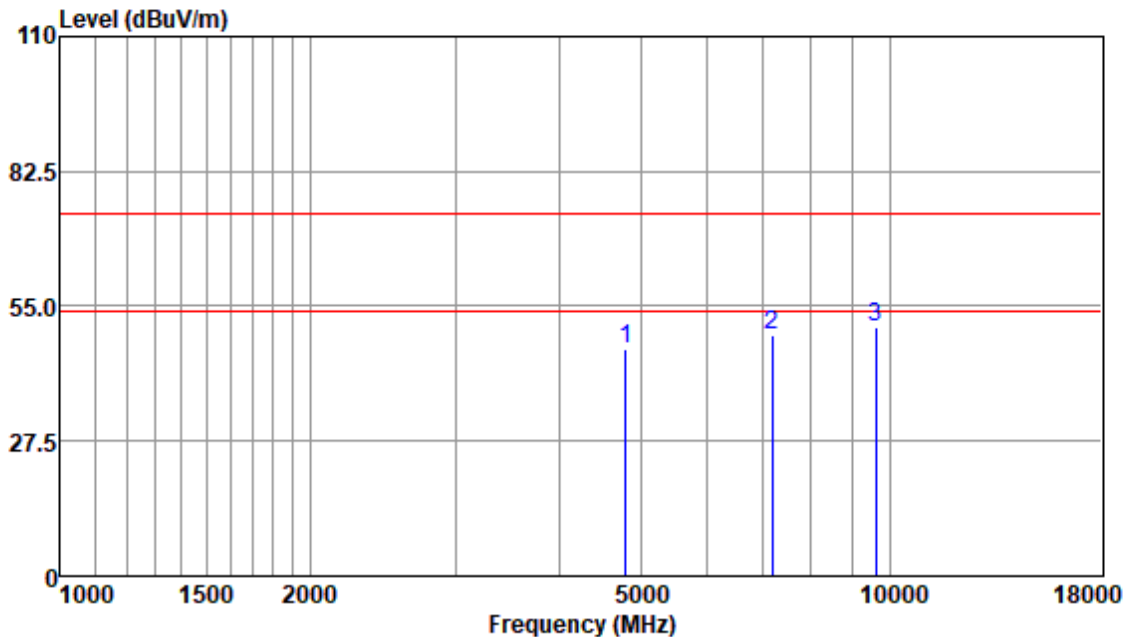
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:Low



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4802.00	41.86	33.72	7.46	36.79	46.25	74.00	-27.75	Peak
7203.00	40.68	36.28	7.79	35.53	49.22	74.00	-24.78	Peak
9604.00	38.09	37.70	8.57	33.58	50.78	74.00	-23.22	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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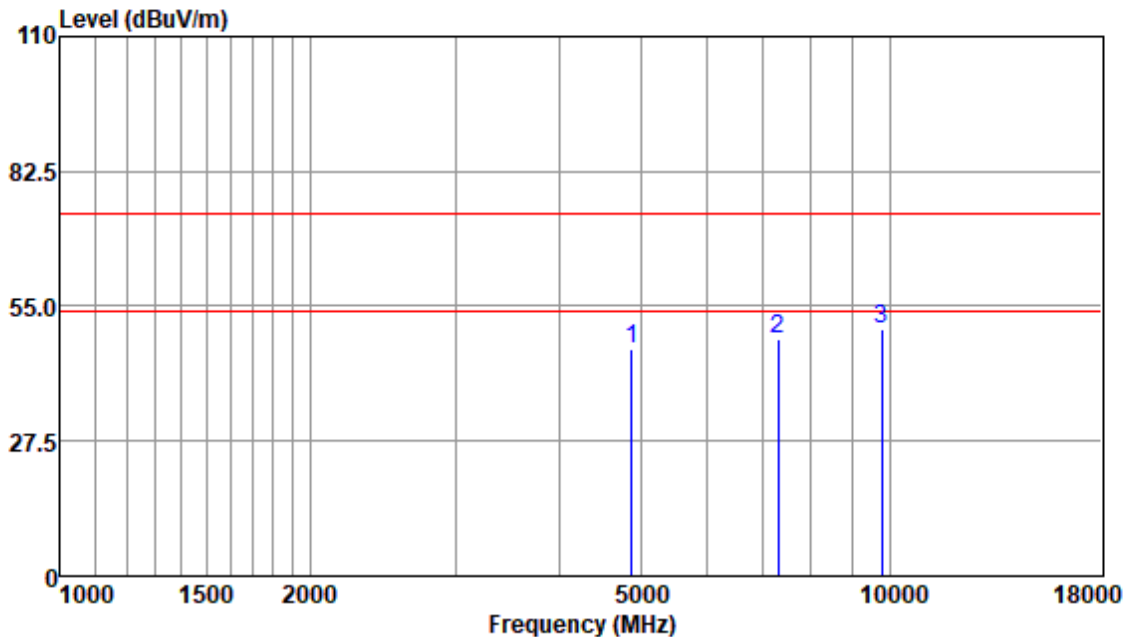
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4880.00	41.71	33.93	7.46	36.81	46.29	74.00	-27.71	Peak
7320.00	39.56	36.47	7.83	35.42	48.44	74.00	-25.56	Peak
9760.00	37.72	37.68	8.57	33.50	50.47	74.00	-23.53	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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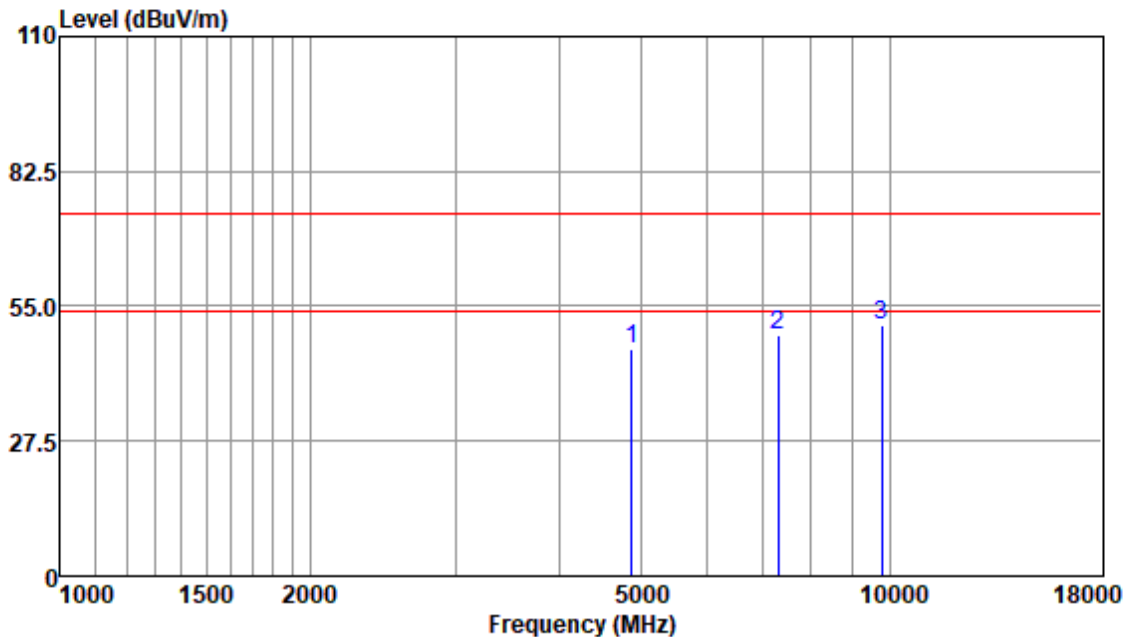
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:middle



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4880.00	41.67	33.93	7.46	36.81	46.25	74.00	-27.75	Peak
7320.00	40.41	36.47	7.83	35.42	49.29	74.00	-24.71	Peak
9760.00	38.47	37.68	8.57	33.50	51.22	74.00	-22.78	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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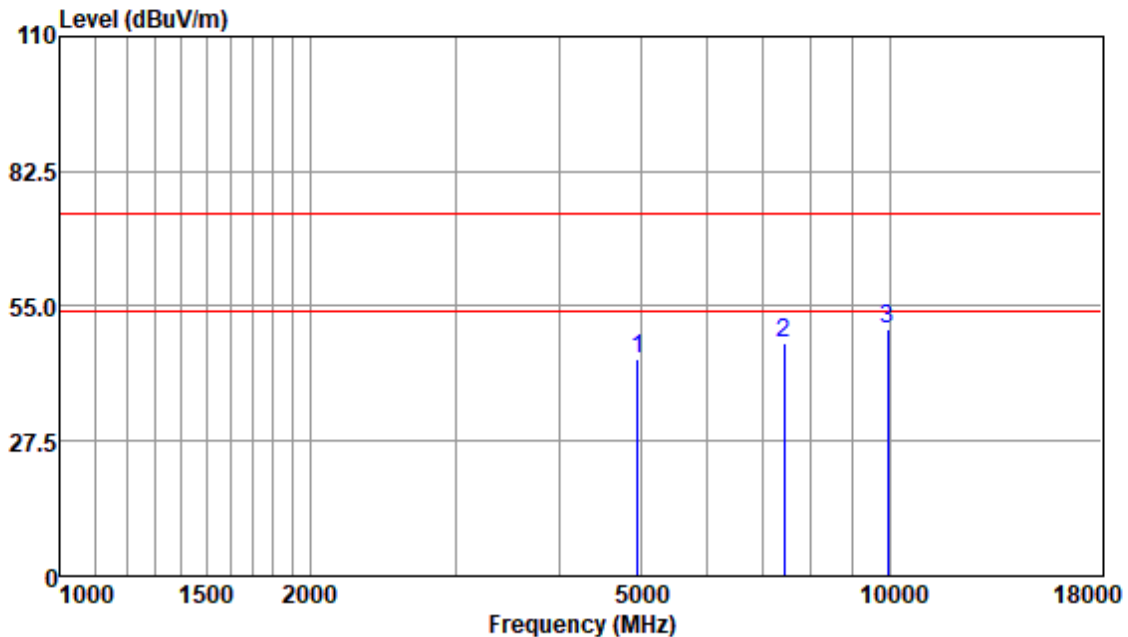
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Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4962.00	39.66	33.98	7.47	36.83	44.28	74.00	-29.72	Peak
7443.00	38.53	36.40	7.88	35.34	47.47	74.00	-26.53	Peak
9924.00	37.41	37.81	8.58	33.41	50.39	74.00	-23.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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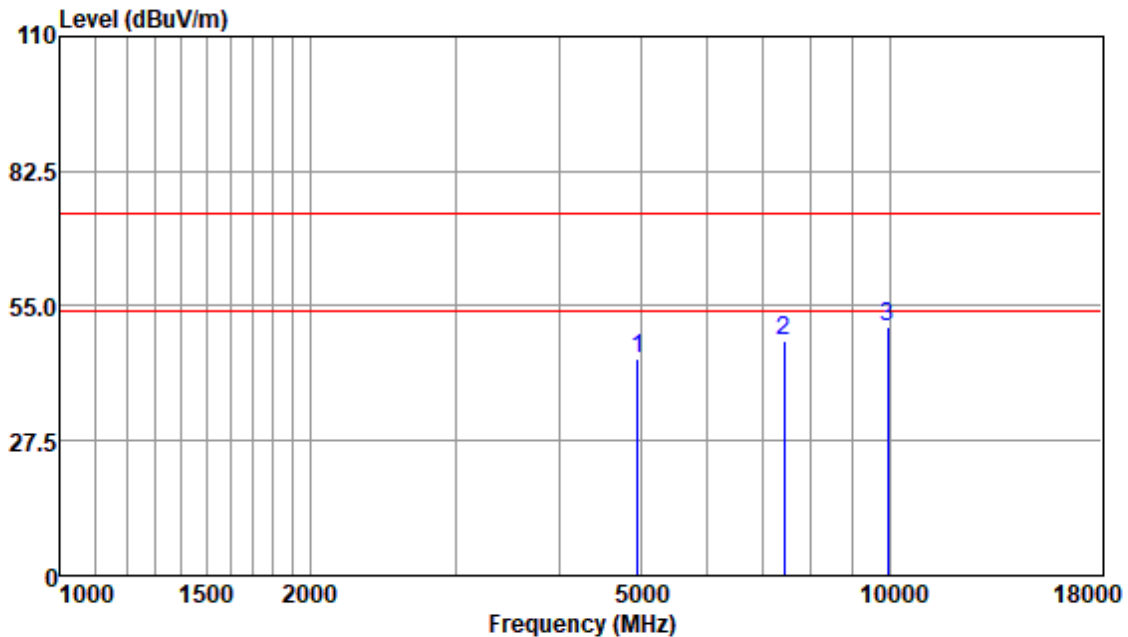
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Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



Antenna Polarity :VERTICAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4962.00	39.46	33.98	7.47	36.83	44.08	74.00	-29.92	Peak
7443.00	39.15	36.40	7.88	35.34	48.09	74.00	-25.91	Peak
9924.00	37.75	37.81	8.58	33.41	50.73	74.00	-23.27	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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## 7 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2206001265AT

## 8 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2206001265AT

**-- End of the Report --**



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