TEST REPORT

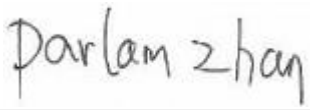
Application No.:	SHEM1908016770CR
FCC ID:	2ATCK-TPMDPROI
IC:	25126-TPMDPROI
Applicant:	Baolong Huf Shanghai Electronics Co., Ltd.
Address of Applicant:	1st Floor, Building 5, 5500 Shenzhuan Rd, Songjiang, Shanghai
Manufacturer:	Baolong Huf Shanghai Electronics Co., Ltd.
Address of Manufacturer:	1st Floor, Building 5, 5500 Shenzhuan Rd, Songjiang, Shanghai
Factory:	Baolong Huf Shanghai Electronics Co., Ltd.
Address of Factory:	1st Floor, Building 5, 5500 Shenzhuan Rd, Songjiang, Shanghai
Equipment Under Test (EUT):	
EUT Name:	TPMS-sensor
Model No.:	TPM-D pro-I
Trade mark:	BHSENS
Standard(s) :	47 CFR Part 15, Subpart C 15.231 RSS-210 Issue 9 August 2016 (Amendment) RSS-Gen Issue 5, April 2018
Date of Receipt:	2019-08-30
Date of Test:	2019-09-12 to 2019-10-19
Date of Issue:	2019-11-21
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-11-21	/

Authorized for issue by:				
				
		Micheal Niu / Project Engineer		
				
		Parlam Zhan / Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**FCC Requirement**	**IC Requirement**	**Method**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	RSS-Gen Section 8.1.3	N/A	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	**Requirement**	**IC Requirement**	**Method**	**Result**
20dB Bandwidth	47 CFR Part 15, Subpart C 15.231	RSS-210 A1.3	ANSI C63.10 (2013) Section 6.9	Pass
Dwell Time	47 CFR Part 15, Subpart C 15.231(e)	RSS-210 A1.1	ANSI C63.10 (2013) Section 7.8.4	Pass
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C 15.231(e)	RSS-210 A1.2	ANSI C63.10 (2013) Section 6.5	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.231	RSS-210 A1.2	ANSI C63.10 (2013) Section 6.4&6.5&6.6	Pass
99% Bandwidth	N/A	RSS-210 A1.3	RSS-Gen Section 6.7	Pass
Frequency Stability	RSS-Gen April 2018	RSS-Gen Section 6.11	RSS-Gen Section 8.11	Pass (Note 1)

Note: (1) Frequency stability requested in RSS GEN S8.11 has been complied since the result of occupied bandwidth can demonstrate.

(2) Sensors related to the report and attachments have two similar kinds of appearance. They have the same electrical and electronic characters. The only difference is the material of valve stem (One valve is mainly made of aluminum, and the other one is mainly cooper and rubber)

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.0 V By battery
Antenna Gain	-23dBi
Antenna Type	Monopole Antenna
Modulation Type	FSK&ASK
Number of Channels	1
Operation Frequency	433.92MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Smart Tool	Baolong Huf Shanghai Electronics Co., Ltd.	GJ006	/

Remark: Smart tools mainly provide data acquisition, data transmission and other functions for a transmitter, a repeater and a receiving terminal module of a truck. Auxiliary tool functions include reading data of the transmitter, reading the ID of the vehicle head

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	±8.4 x 10^{-8}
2	Timeout	±2s
3	Duty cycle	±0.37%
4	Occupied Bandwidth	±3%
5	RF conducted power	±0.6dB
6	RF power density	±2.84dB
7	Conducted Spurious emissions	±0.75dB
8	RF Radiated power	±4.6dB (Below 1GHz)
		±4.1dB (Above 1GHz)
9	Radiated Spurious emission test	±4.2dB (Below 30MHz)
		±4.4dB (30MHz-1GHz)
		±4.8dB (1GHz-18GHz)
		±5.2dB (Above 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.

4.4 Test Location

All tests were performed at:

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

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

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 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 17025:2005 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.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

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

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

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

IC Registration No.: 8617A-1. CAB identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2018-12-20	2019-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2019-08-13	2020-08-12
Signal Generator	R&S	SMR20	SHEM006-1	2019-08-13	2020-08-12
Signal Generator	Agilent	N5182A	SHEM182-1	2019-08-13	2020-08-12
Communication Tester	R&S	CMW270	SHEM183-1	2019-08-13	2020-08-12
Switcher	Tonscend	JS0806	SHEM184-1	2019-08-13	2020-08-12
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2019-08-13	2020-08-12
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-25	2020-09-24
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2018-12-26	2019-12-25
DC Power Supply	MCN	MCH-303A	SHEM210-1	2018-12-26	2019-12-25
Conducted test Cable	/	RF01~RF04	/	2018-12-26	2019-12-25
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2018-12-20	2019-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2018-12-20	2019-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2019-04-30	2022-04-29
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2017-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	BDLNA-0001	SHEM164-1	2019-08-13	2020-08-12
Pre-amplifier (1-18GHz)	CLAVIIO	BDLNA-0118	SHEM050-2	2019-08-13	2020-08-12
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2018-12-20	2019-12-19
Signal Generator	R&S	SMR40	SHEM058-1	2019-08-13	2020-08-12
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	2017-07-22	2020-07-21
RE test Cable	/	RE01, RE02, RE06	/	2018-12-26	2019-12-25

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

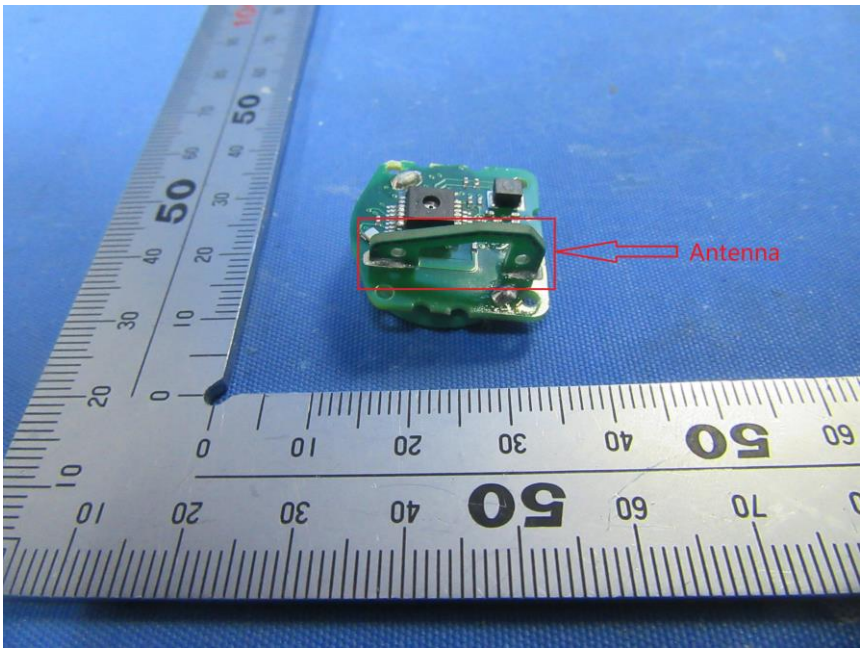
6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is Monopole antenna and no consideration of replacement.



7 Radio Spectrum Matter Test Results

7.1 20dB Bandwidth

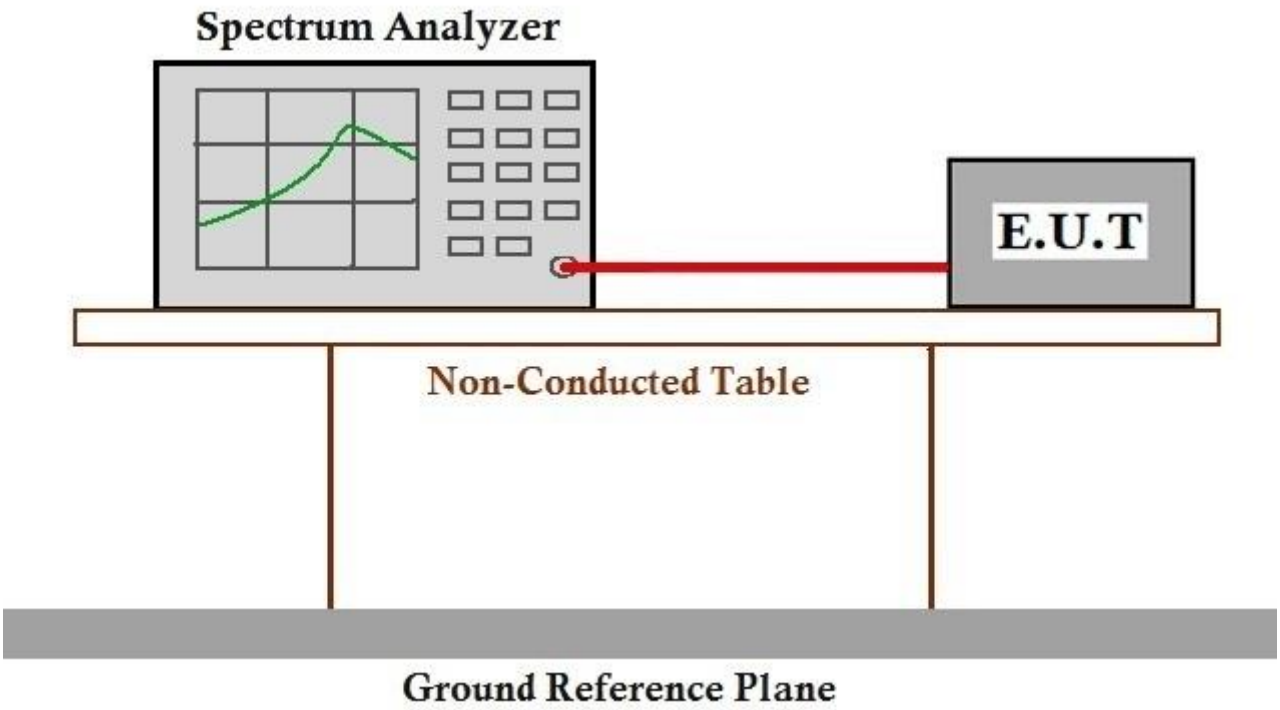
Test Requirement 47 CFR Part 15, Subpart C 15.231(c)
Test Method: ANSI C63.10 (2013) Section 6.9
Limit:

Frequency range(MHz)	Limit
70-900	No wider than 0.25% of the center frequency
Above 900	No wider than 0.5% of the center frequency

7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar
Test mode: a:TX mode_Keep the EUT in transmitting with FSK modulation mode.
b:TX mode_Keep the EUT in transmitting with ASK modulation mode.

7.1.2 Test Setup Diagram

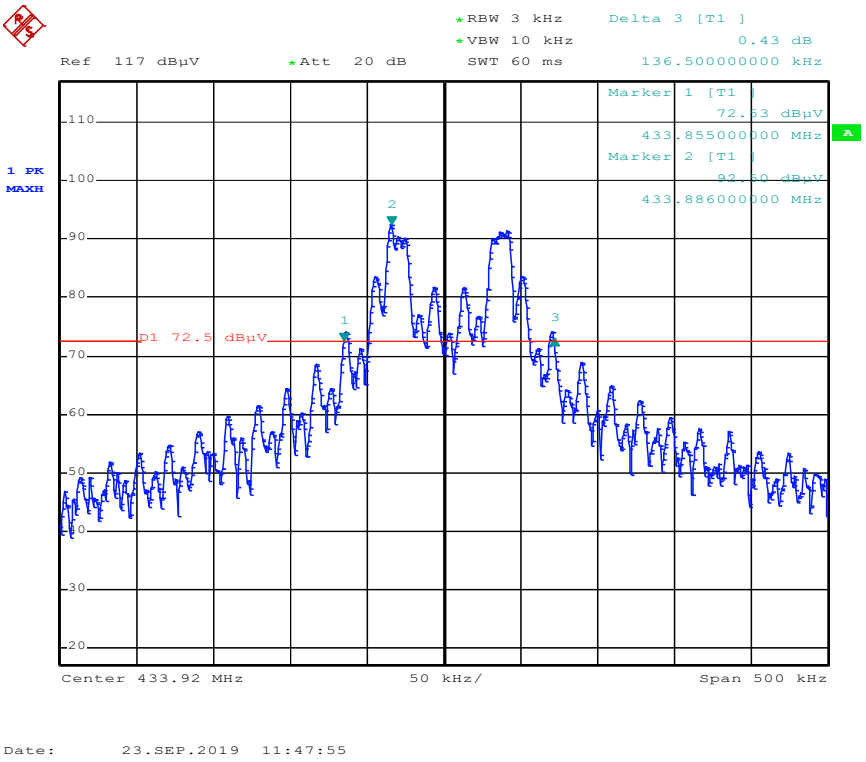


7.1.3 Measurement Procedure and Data

Test mode	Frequency(MHz)	20dB bandwidth (kHz)	Limit (kHz)	Results
Mode a	433.92	136.50	1084.80	Pass
Mode b	433.92	99.00	1084.80	Pass

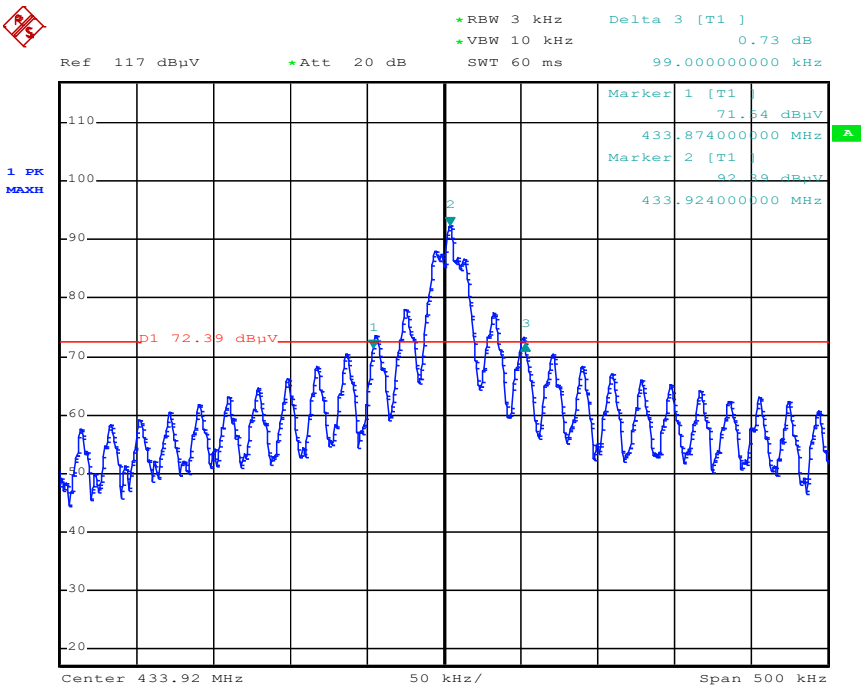
Test plot as follows:

Mode a



Date: 23.SEP.2019 11:47:55

Mode b



Date: 23.SEP.2019 11:38:14

7.2 Dwell Time (15.231(e))

Test Requirement 47 CFR Part 15, Subpart C 15.231(e)

Test Method: ANSI C63.10 (2013) Section 7.8.4

Limit:

Device type	Limit
Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) 15.231 and may be employed for any type of operation, including operation prohibited in paragraph (a) 15.231	The duration of each transmission ≤1S
	Silent period >30 times the duration of the transmission and ≥10S

7.2.1 E.U.T. Operation

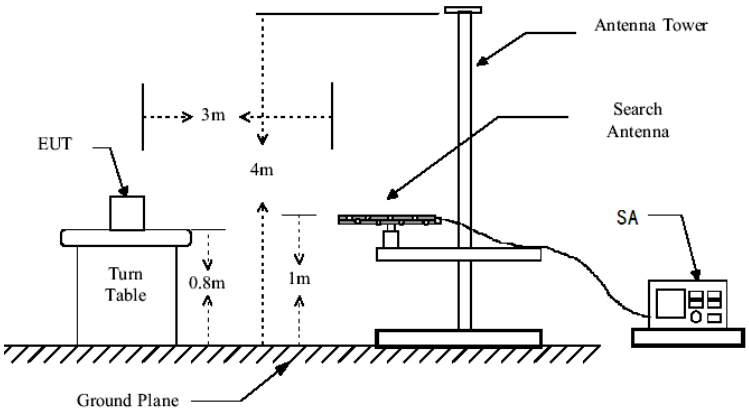
Operating Environment:

Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: a:TX mode_Keep the EUT in transmitting with FSK modulation mode.

b:TX mode_Keep the EUT in transmitting with ASK modulation mode.

7.2.2 Test Setup Diagram

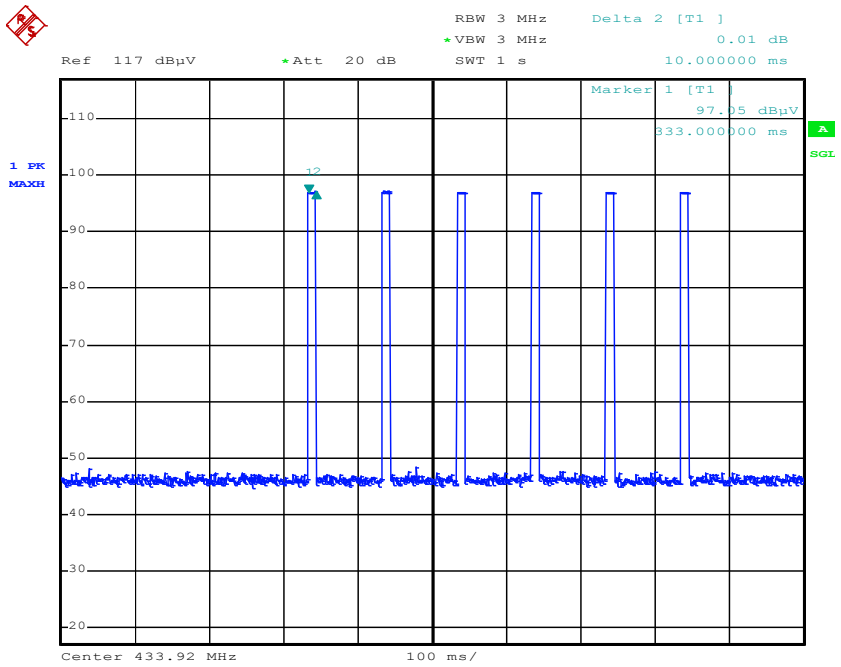


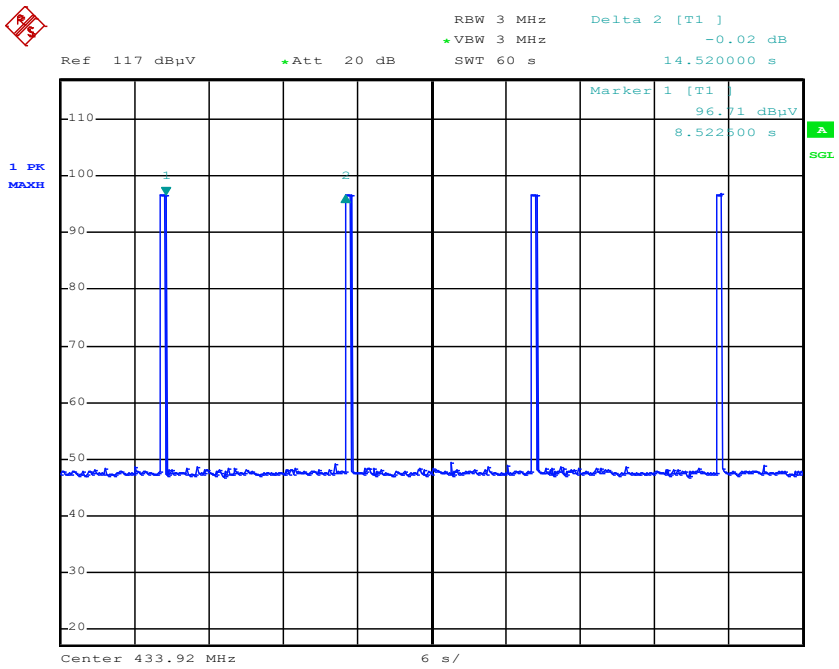
7.2.3 Measurement Procedure and Data

Test mode	Frequency(MHz)	Duration of each Transmission Time(s)	Limit: not more than 1 seconds(s)	Results
Mode a	433.92	0.06	1	Pass
Mode b	433.92	0.06	1	Pass

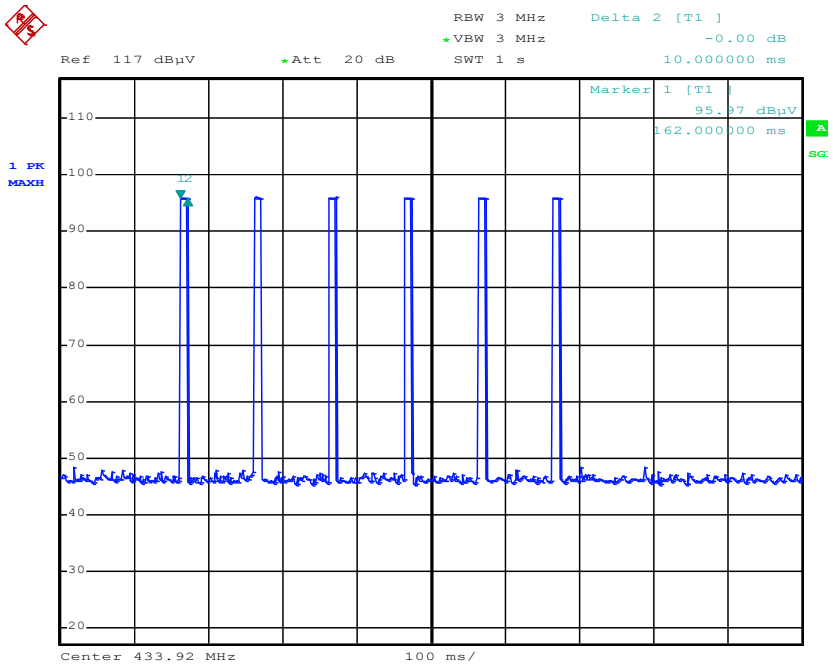
Test mode	Frequency(MHz)	The silent period (s)	Limit: At least 30 times the duration of the transmission but in no case less than 10s	Results
Mode a	433.92	14.58	＞10s	Pass
Mode b	433.92	14.52	＞10s	Pass

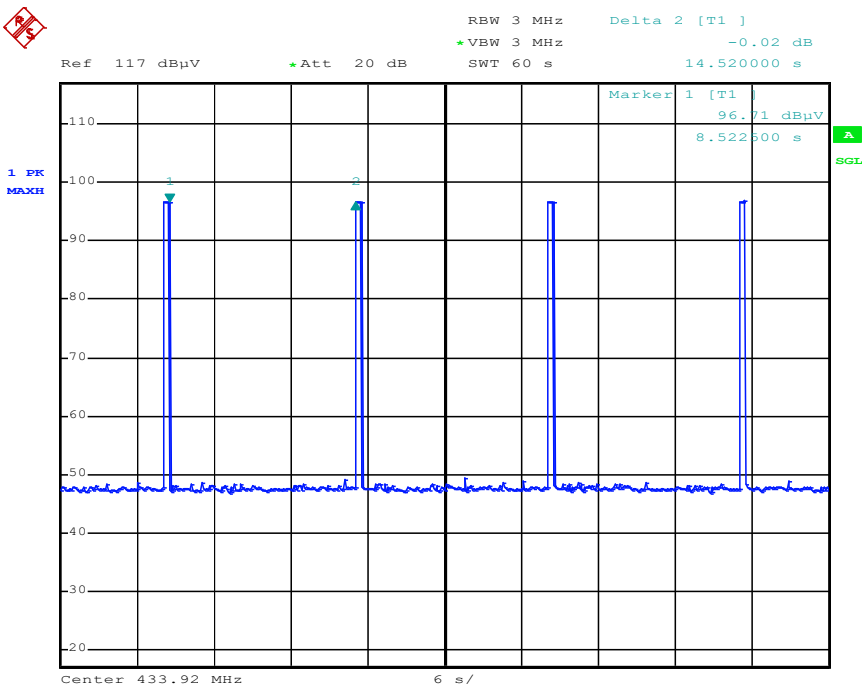
Test plot as follows:
Mode a





Mode b


RBW 3 MHz
Delta 2 [T1]
VBW 3 MHz
-0.00 dB
Ref 117 dBµV
Att 20 dB
SWT 1 s
10.000000 ms
Marker 1 [T1]
95.97 dBµV
162.000000 ms
1 PK
MAXH
110
100
90
80
70
60
50
40
30
20
Center 433.92 MHz
100 ms/


RBW 3 MHz
Delta 2 [T1]
VBW 3 MHz
-0.02 dB
Ref 117 dBµV
Att 20 dB
SWT 60 s
14.520000 s
Marker 1 [T1]
96.71 dBµV
8.522500 s
1 PK
MAXH
110
100
90
80
70
60
50
40
30
20
Center 433.92 MHz
6 s/

7.3 Field Strength of the Fundamental Signal (15.231(e))

Test Requirement 47 CFR Part 15, Subpart C 15.231(e)

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

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	1000	100
70-130	500	50
130-174	500 to 1500	50 to 150
174-260	1500	150
260-470	1500 to 5000	150 to 500
Above 470	5000	500
Remark: the emission limit is based on measurement instrumentation employing an average detector at a distance of 3 meters. The frequencies above 1000MHz 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.		

7.3.1 E.U.T. Operation

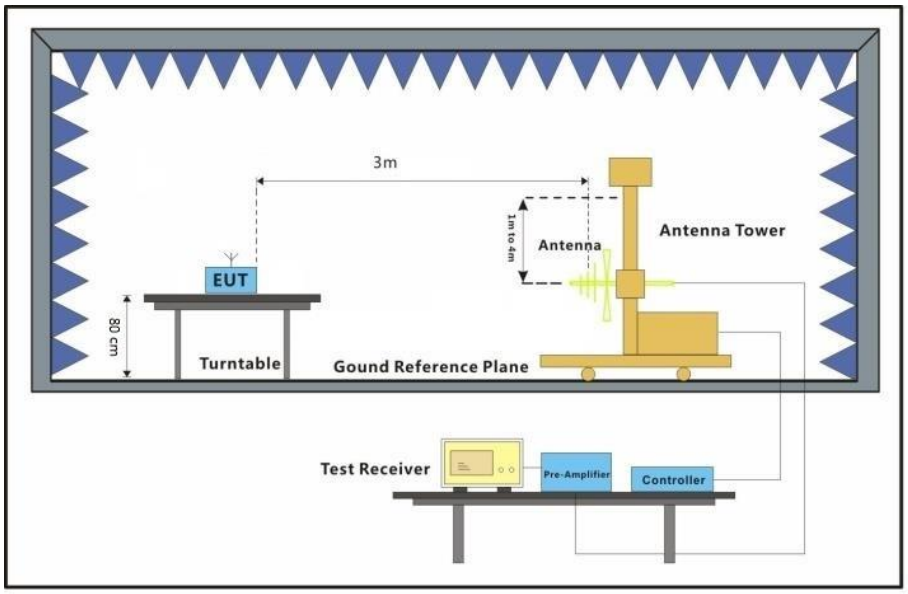
Operating Environment:

Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: a:TX mode_Keep the EUT in transmitting with FSK modulation mode.

b:TX mode_Keep the EUT in transmitting with ASK modulation mode.

7.3.2 Test Setup Diagram



7.3.3 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. 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.

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

Test Mode	Freq. (MHz)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
Mode a	433.92	77.67	92.87	-15.20	Peak	Horizontal
		53.23	72.87	-19.64	Average	Horizontal
		71.24	72.87	-1.60	Peak	Vertical

Test Mode	Freq. (MHz)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
Mode b	433.92	71.02	72.87	-1.85	Peak	Horizontal
		64.79	72.87	-8.08	Peak	Vertical

Remark:

1. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.
2. Average level=Peak level-Duty Cycle Factor
3. Duty Cycle Factor= 20log(Duty Cycle)= -24.44dB

7.4 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.231(e)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6

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.		

7.4.1 E.U.T. Operation

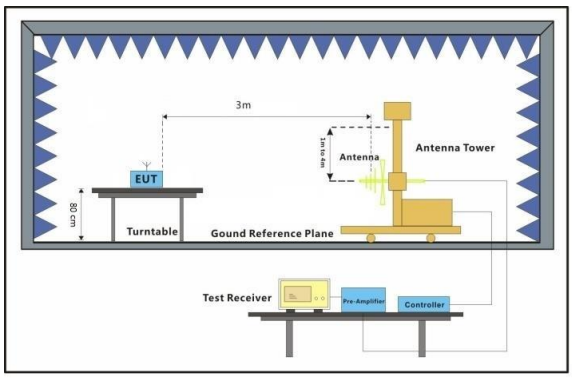
Operating Environment:

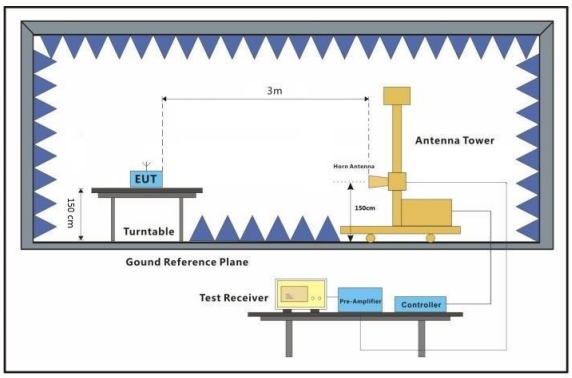
Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

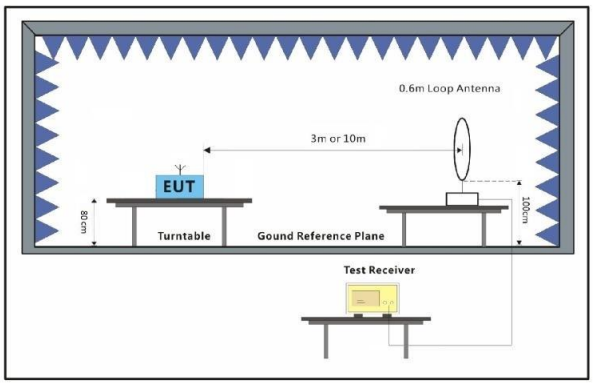
Test mode: a:TX mode_Keep the EUT in transmitting with FSK modulation mode.

b:TX mode_Keep the EUT in transmitting with ASK modulation mode.

7.4.2 Test Setup Diagram







7.4.3 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) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

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

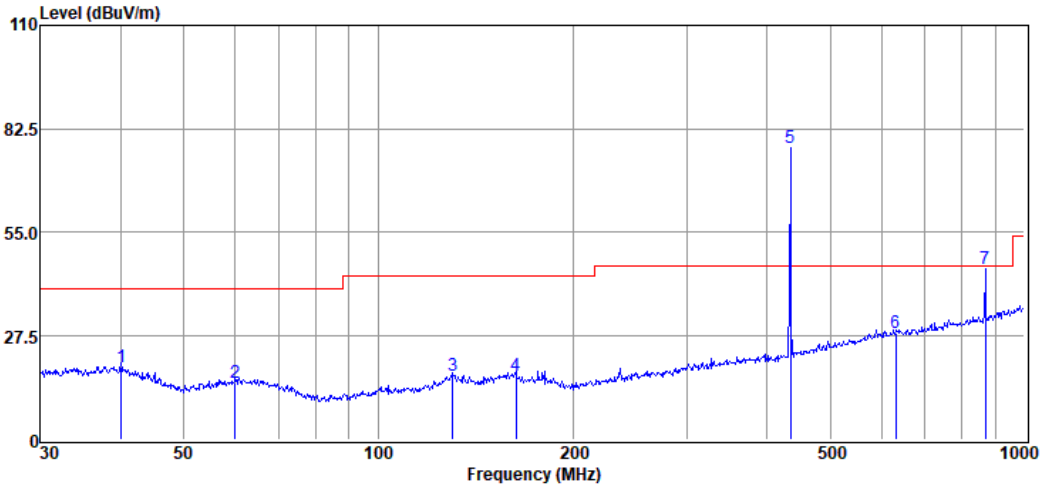
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and 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.

4) 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

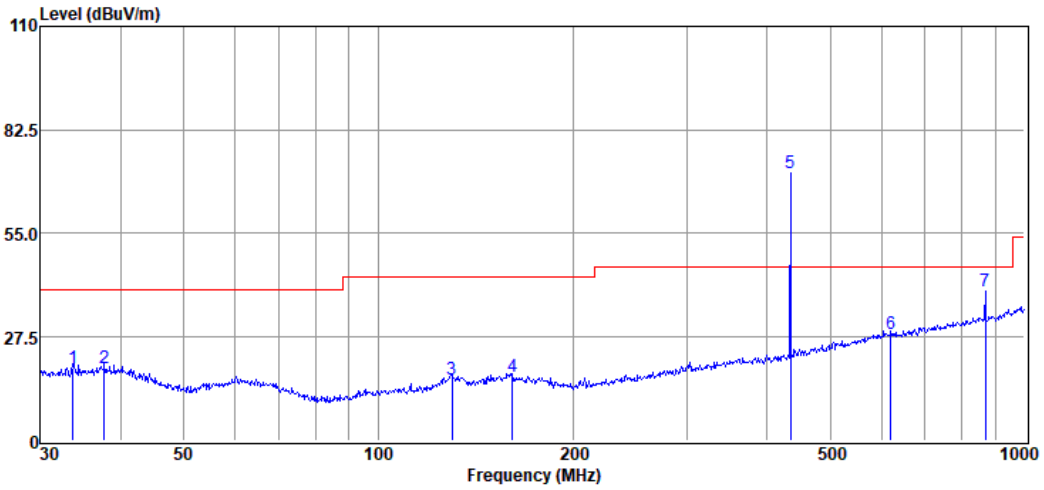
30MHz-1GHz（Mode a）

Horizontal



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1	39.994	45.07	16.30	42.33	0.31	19.35	40.00	-20.65	QP
2	60.069	44.44	12.60	42.33	0.59	15.30	40.00	-24.70	QP
3	130.379	44.97	12.71	42.26	1.43	16.85	43.50	-26.65	QP
4	163.182	45.18	12.56	42.22	1.48	17.00	43.50	-26.50	QP
5	434.065	100.49	15.87	41.81	3.12	77.67	Fundamental signal		
6	631.688	46.45	19.67	41.69	3.85	28.28	46.00	-17.72	QP
7	869.130	60.12	22.45	41.74	4.56	45.39	46.00	-0.61	QP

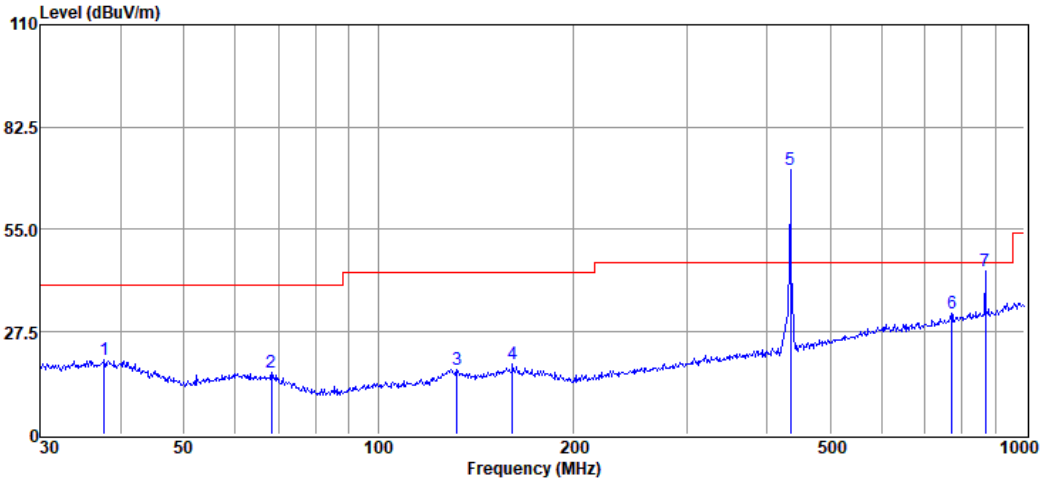
Vertical



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
1	33.680	45.57	15.70	42.36	0.53	19.44	40.00	-20.56	QP
2	37.680	45.03	16.09	42.34	0.49	19.27	40.00	-20.73	QP
3	129.923	44.41	12.80	42.26	1.43	16.38	43.50	-27.12	QP
4	161.474	44.78	12.89	42.22	1.46	16.91	43.50	-26.59	QP
5	434.065	94.06	15.87	41.81	3.12	71.24	Fundamental signal		
6	620.710	46.49	19.57	41.69	3.81	28.18	46.00	-17.82	QP
7	869.130	54.46	22.45	41.74	4.56	39.73	46.00	-6.27	QP

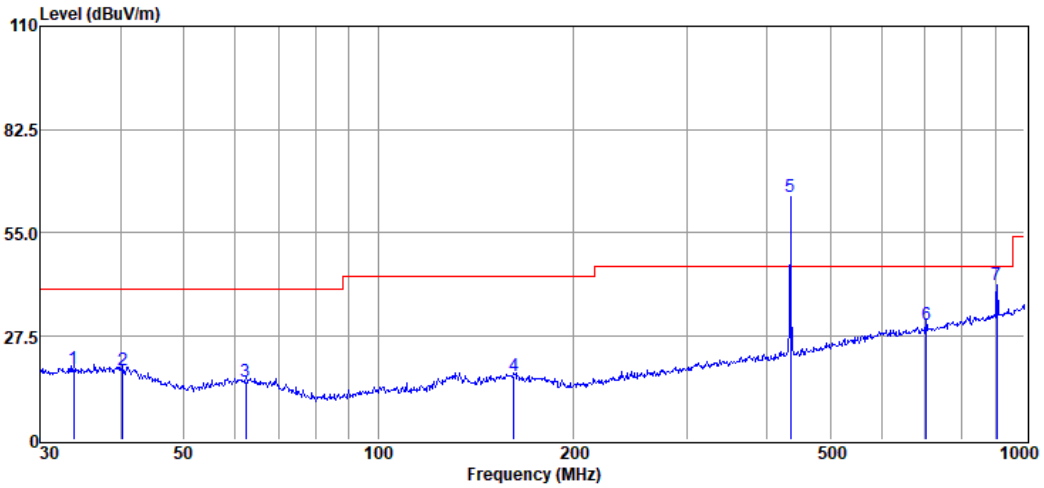
30MHz-1GHz（Mode b）

Horizontal



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1	37.680	45.73	16.09	42.34	0.49	19.97	40.00	-20.03	QP
2	68.391	46.53	11.58	42.27	0.64	16.48	40.00	-23.52	QP
3	132.221	45.78	12.45	42.26	1.42	17.39	43.50	-26.11	QP
4	161.474	46.72	12.89	42.22	1.46	18.85	43.50	-24.65	QP
5	434.065	93.84	15.87	41.81	3.12	71.02	Fundamental signal		
6	771.449	48.65	21.43	41.99	4.30	32.39	46.00	-13.61	QP
7	869.130	58.68	22.45	41.74	4.56	43.95	46.00	-2.05	QP

Vertical



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.799	45.11	15.72	42.36	0.53	19.00	40.00	-21.00	QP
2	40.276	44.45	16.07	42.33	0.31	18.50	40.00	-21.50	QP
3	62.431	44.86	12.31	42.31	0.60	15.46	40.00	-24.54	QP
4	162.041	44.91	12.78	42.22	1.46	16.93	43.50	-26.57	QP
5	434.065	87.61	15.87	41.81	3.12	64.79	Fundamental signal		
6	704.226	47.96	20.26	41.81	4.31	30.72	46.00	-15.28	QP
7	906.482	55.47	22.75	41.61	4.59	41.20	46.00	-4.80	QP

Above 1GHz (Mode a)

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	polarization
1	1350.667	47.26	15.9	31.36	54	-22.64	peak	Horizontal
2	2464.024	47.00	12.56	34.44	54	-19.56	peak	Horizontal
3	2990.531	47.82	10.96	36.86	54	-17.14	peak	Horizontal
4	1231.345	50.62	16.26	34.36	54	-19.64	peak	Vertical
5	1819.036	52.98	14.61	38.37	54	-15.63	peak	Vertical
6	2120.171	53.05	13.8	39.25	54	-14.75	peak	Vertical

Above 1GHz (Mode b)

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	polarization
1	2088.43	43.54	11.27	32.27	54	-21.73	peak	Horizontal
2	2516.22	44.25	9.41	34.84	54	-19.16	peak	Horizontal
3	3064.39	45.04	7.34	37.70	54	-16.30	peak	Horizontal
4	1247.79	44.66	13.69	30.97	54	-23.03	peak	Vertical
5	2000.53	45.18	11.72	33.46	54	-20.54	peak	Vertical
6	2489.31	45.51	9.47	36.04	54	-17.96	peak	Vertical

7.5 99% Bandwidth

Test Requirement RSS-210 A1.3

Test Method: RSS-Gen Section 6.7

7.5.1 E.U.T. Operation

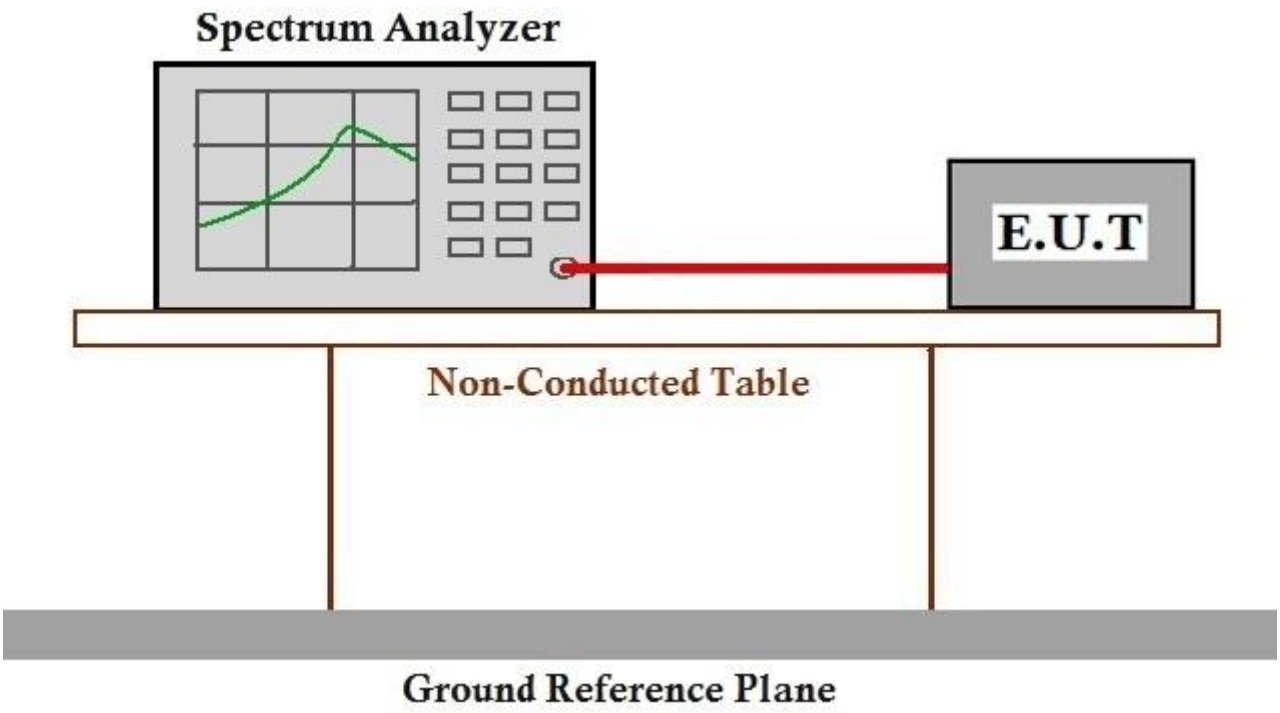
Operating Environment:

Temperature: 20 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: a:TX mode_Keep the EUT in transmitting with FSK modulation mode.

b:TX mode_Keep the EUT in transmitting with ASK modulation mode.

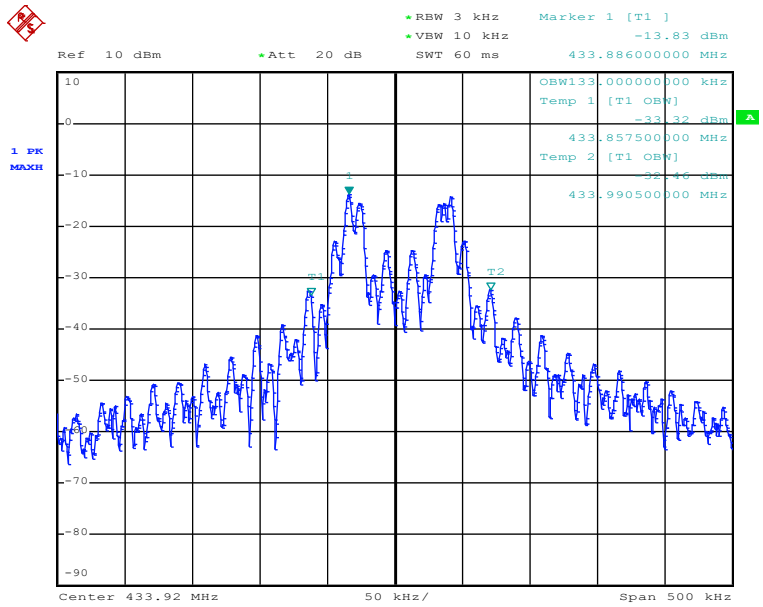
7.5.2 Test Setup Diagram



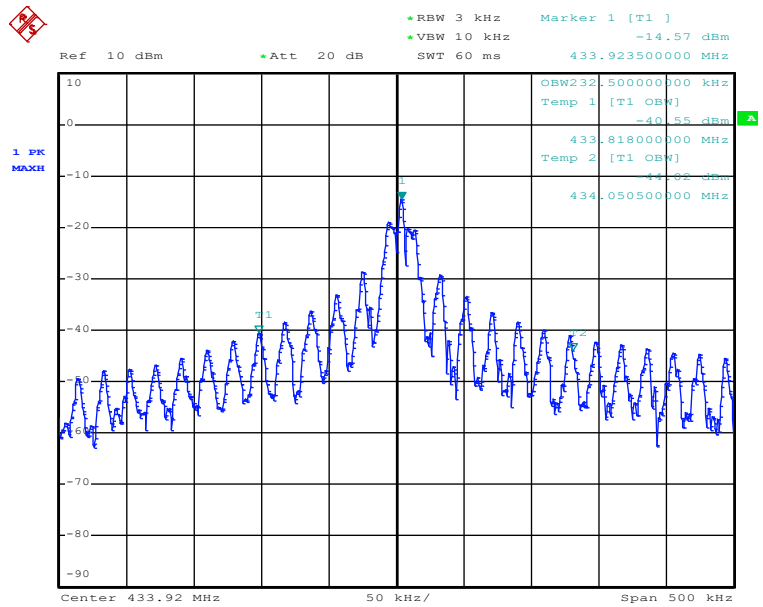
7.5.3 Measurement Procedure and Data

Test mode	Frequency (MHz)	Bandwidth (MHz)	Limit(MHz)	Result
Mode a	433.92	0.1330	1.085	PASS
Mode b	433.92	0.2325	1.085	PASS

Mode a:


RBW 3 kHz
VBW 10 kHz
SWT 60 ms
Marker 1 [T1]
-13.83 dBm
433.886000000 MHz
Ref 10 dBm
Att 20 dB
OBW133.000000000 kHz
Temp 1 [T1 OBW]
-33.32 dBm
433.857500000 MHz
Temp 2 [T1 OBW]
-32.46 dBm
433.990500000 MHz
1 PK
MAXH
Center 433.92 MHz
50 kHz/
Span 500 kHz

Mode b:


RBW 3 kHz
VBW 10 kHz
SWT 60 ms
Marker 1 [T1]
-14.57 dBm
433.923500000 MHz
Ref 10 dBm
Att 20 dB
OBW232.500000000 kHz
Temp 1 [T1 OBW]
-40.55 dBm
433.818000000 MHz
Temp 2 [T1 OBW]
-44.02 dBm
434.050500000 MHz
1 PK
MAXH
Center 433.92 MHz
50 kHz/
Span 500 kHz

8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -