

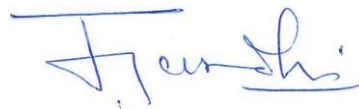
NCC RADIO TEST REPORT

Product name	Wireless door sensor
Applicant	力州機電股份有限公司 TMT Automation Inc.
Manufacture	東莞堤摩訊傳動科技有限公司 Timotion Technology Co., Ltd.
Rating(s)	DC 3V
·Trademark	TMT
Model and/or type reference	SN1
Standard	LP0002:2020
Test Result	PASS

Date of receipt : 04-20-2021

Date of Issue: 06-29-2021

signature :



NCC RADIO TEST REPORT

Report Reference No...... M210629N3

Compiled by (+ signature)..... Kevin Bothmann



Approved by (+ signature) Jay Gandhi



Date of issue 2021-06-29

Applicant's name..... 力州機電股份有限公司

TMT Automation Inc.

Address..... 臺北市信義區吳興街 284 巷 24 弄 61 號

No61, Aly. 24, Ln. 284, Wuxing St., Xinyi Dist, Taipei City 110, Taiwan

Manufacture's Name 東莞堤摩訊傳動科技有限公司

Timotion Technology Co., Ltd.

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Shiyong Mingying Industrial Zone, Hengli Town, DongGuan City, GuangDong, China, 523465

Test specification:

Standard..... LP0002: 2020

Test procedure..... EIA 603、ANSI、FCC/47 CFR/2.1046、2.1047、2.1049、2.1051、2.1053 and 2.1055

Non-standard test method..... N/A

Test item description

Product name Wireless door sensor

Model and/or type reference ... TMT

Model Description SN1

Rating(s) : DC 3V

Testing Laboratory information:

Testing Laboratory Name Electro Magnetic Test, Inc.

Address 1547 Plymouth Street, Mountain View, CA 94043

CAB Identifier Number US0036

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Testing.....:

Date of receipt of test item: 20 Apr. 2021

Date (s) of performance of tests.....: 21 Apr. 2021~28 June 2021

Date of Issue: 29 June 2021

Test Result: **Pass**

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Electro Magnetic Test, Inc., which is an independent testing and consulting firm. The test report is based on testing performed Electro Magnetic Test, Inc. personnel according to the measurement procedure described in the test specification given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Federal Government.

Electro Magnetic Test, Inc. is recognized by the following agencies for performing EMI/EMC testing:

COUNTRY	AGENCY	IDENTIFYING #
USA	Federal Communications Commission (FCC) (EMT's test site is recognized by the FCC)	Registration Number: 90576
USA, Canada, Taiwan, Australia/New Zealand, European Community	National Voluntary Lab Accreditation Program (NVLAP) (EMT is accredited by NVLAP. A copy of the NVLAP Scope Of Accreditation is available upon request.)	Lab Code: 200147-0
Canada	Industry Canada	File No.: IC 2804
Japan	Voluntary Control Council For Interference (VCCI)	A-0118
	Open Field Test Site "A"	-
	Mains Conducted Emissions Test Site "A"	-
	Telecom Conducted Emissions Test Site "A"	-
	3 Meter Semi-Anechoic Chamber Site "E"	-
	3 Meter Semi-Anechoic Chamber Site "E" (1GHz – 6GHz)	-
	Mains Conducted Emissions Test Site "E"	-
	Telecom Conducted Emissions Test Site "E"	-
Korea	Ministry of Information and Communication's Radio Research Laboratory (RRL) under the Asia Pacific Economic Cooperation (APEC) Mutual Recognition Arrangement (A copy of the Scope Of Accreditation is available upon request)	US0036
Taiwan	Bureau Of Standards, Metrology and Inspection (BSMI)	Reference Number: SL2-IN-E-1024
Australia/New Zealand	Australian Communications Authority (AUSTEL)	*

***THESE AGENCIES DO NOT ISSUE AN IDENTIFYING NUMBER TO TEST LABS.**

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6. EUT TEST SETUP PHOTO

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1 错误!未指定书签。 . SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

LP0002 : 2020			
Standard Section	Test Item	Judgment	Remark
3.2	Antenna Requirement	PASS	None
3.3	Conduction Emissions	N/A	None
4.4.2.5	Radiated Emissions	PASS	None
4.4.2.2	Bandwidth	PASS	None
4.4.2.4(2)	Transmit time	PASS	None
3.6	Receiver Spurious Emissions	N/A	None

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

错误!未指定书签。 **MEASUREMENT UNCERTAINTY**

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	1.38dB
2	Radiated Emission Test	3.17dB
3	RF power,conducted	0.16dB
4	Spurious emissions,conducted	0.21dB
5	All emissions,radiated(<1G)	4.68dB
6	All emissions,radiated(>1G)	4.89dB

2 错误!未指定书签。 . GENERAL INFORMATION

错误!未指定书签。 GENERAL DESCRIPTION OF EUT

Equipment	Wireless door sensor	
Brand Name	TMT	
Model Name	SN1	
Derivative Model	N/A	
OEM Brand/Model Name	N/A	
Product Description	Operation Frequency:	433.92MHz
	Number of Channel	1 CH
	Modulation Type	ASK
	Antenna Designation:	PCB antenna
	Antenna Gain(Peak)	-19.86dBi
Channel List	Please refer to the Note 2.	
Battery	Rated Voltage: 3 V DC Capacity: VAVTT: 1.5V*2 SIZE: N	
Connecting I/O Port(s)	Please refer to the User's Manual	
Products Covered	N/A	
EUT Modification(s)	N/A	

Note:

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

2.

Channel List	
Channel	Frequency(MHz)
01	433.92

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	TMT	SN1	PCB antenna	N/A	-19.86dBi	Antenna

错误!未指定书签。 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX

For Radiated Emission	
Final Test Mode	Description
Mode 1	TX

Note:

(1) The EUT use new battery.

错误!未指定书签。 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters.

RF Function	Type	Mode Or Modulation type	Ant Gain(dBi)	Power Class	Software For Testing
Other SRD	433MHz	ASK	-19.86	Default	Putty_v0.63

错误!未指定书签。 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Block diagram of EUT configuration

E-1
EUT

错误!未指定书签。 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Wireless door sensor	TMT	SN1	N/A	N/A	N/A

Item	Equipment	Mfr/Brand	Model/Type No.	Note
1	Battery	VAVTT	LR1	EUT

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” or “with ferrite core”;”NO” means “unshielded” or”without ferrite core”
- (4) “*”:In this report, the applicant did not provide the accompanying accessories with the equipment. The accessories were provided by the laboratory (or the applicant) and inspected simultaneously.

错误!未指定书签。 **EQUIPMENTS LIST FOR ALL TEST ITEMS**

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Spectrum Analyzer	Hewlett Packard	8566B	3013A07296	April 29, 2021	1 Year
RF Preselector	Hewlett Packard	85685A	3010A01157	April 29, 2021	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650	2521A00584	April 29, 2021	1 Year
Preamplifier	Com Power	PA-102	1482	April 29, 2021	1 Year
RF Attenuator	Mini-Circuits	CAT-10	Asset #1000	December 8, 2020	1 Year
LISN	Com Power	LI-200	12012	September 10, 2020	1 Year
LISN	Com Power	LI-200	12214	September 10, 2020	1 Year
LISN	Com Power	LI-200	1767	September 10, 2020	1 Year
LISN	Com Power	LI-200	1768	September 10, 2020	1 Year
Biconical Antenna	Com Power	AB-100	01557	December 29, 2020	1 Year
Log Periodic Antenna	Com Power	AL-100	16037	December 29, 2020	1 Year
Horn Antenna	Com Power	AHA-118	711054	December 29, 2020	1 Year
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Dell, Inc.	DHS	DNSV641	N/A	N/A
Printer	Hewlett Packard	C8124A	CN39B2234T	N/A	N/A
Plotter	Hewlett Packard	7470A	2308A96499	N/A	N/A

EMI Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
EMI Receiver	Rohde & Schwarz	ESU40	100127	June 12, 2021	1 Year
BiConiLog Antenna	ETS-Lindgren	3142D	00102183	August 14, 2020	1 Year
Horn Antenna	ETS-Lindgren	3117	00109294	May 6, 2021	1 Year
Preamplifier	Rohde & Schwarz	TS-PR18	100056	June 12, 2021	1 Year
Antenna Mast	ETS-Lindgren	2175	00095727	N/A	N/A
Turntable	ETS-Lindgren	2187-3.0	00118231	N/A	N/A
Computer	Acer	Aspire 8930	85100050123	N/A	N/A
Multi-Function Controller	ETS-Lindgren	2090	00102270	N/A	N/A
Loop Antenna	ARA	PLA-1030/B	1029	May 19, 2021	1 Year

3 错误!未指定书签。 . CONDUCTED EMISSION MEASUREMENT

错误!未指定书签。 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5			66 - 56 *	56 - 46 *	CISPR
0.50 -5.0			56.00	46.00	CISPR
5.0 -30.0			60.00	50.00	CISPR

0.15 -0.5			66 - 56 *	56 - 46 *	LP0002
0.50 -5.0			56.00	46.00	LP0002
5.0 -30.0			60.00	50.00	LP0002

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

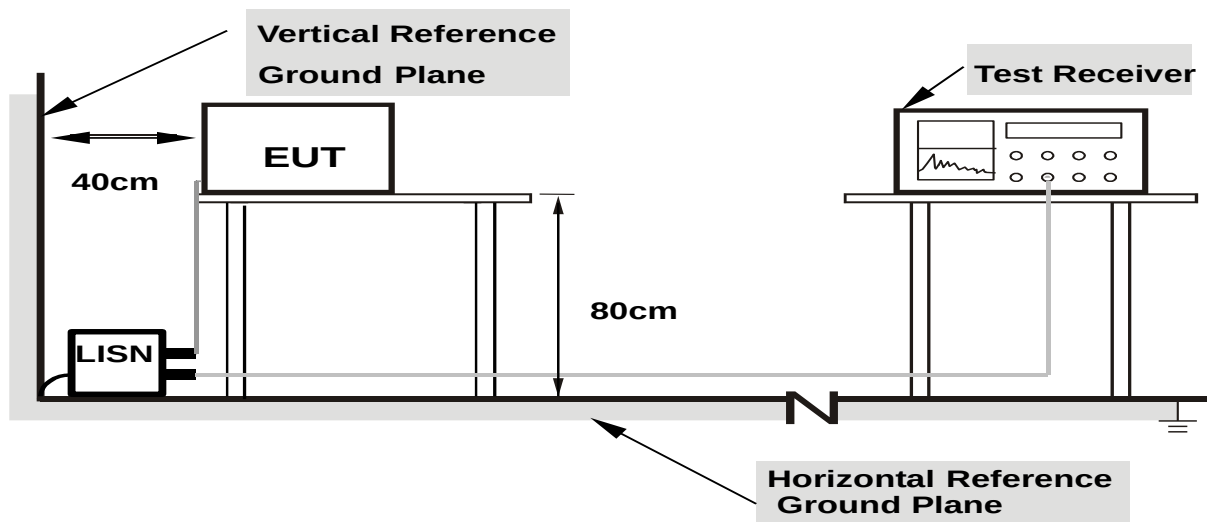
错误!未指定书签。 **TEST PROCEDURE**

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

错误!未指定书签。 **DEVIATION FROM TEST STANDARD**

No deviation

错误!未指定书签。 **TEST SETUP**



**Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80
from other units and other metal planes**

错误!未指定书签。 **TEST RESULTS**

N/A

The test item is not applicable in this Test Report

4 错误!未指定书签。 . TRANSMIT TIME

错误!未指定书签。 **APPLIED PROCEDURES/ Limits**

- (1) In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the but in no case less than 10 seconds.

错误!未指定书签。 **TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Set the spectrum analyzer as RBW=100kHz, VBW=100kHz, Span=0Hz, Adjust Sweep=30s.

错误!未指定书签。 **DEVIATION FROM STANDARD**

No deviation.

错误!未指定书签。 **TEST SETUP**

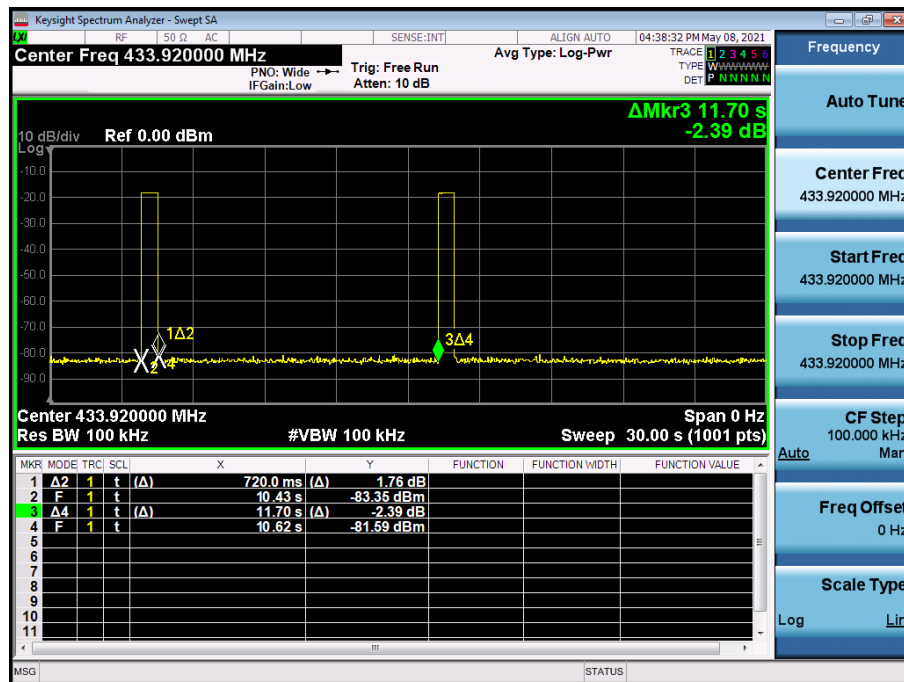


错误!未指定书签。 **TEST RESULTS**

EUT:	Wireless door sensor	Model Name :	SN1
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3V
Test Mode :	TX CH 01(ASK)	Test Date:	2021-05-08

Frequency(MHz)	Each transmission time(s)	silent period between transmissions(s)
433.92	0.72	11.70
Limit	<1s	>10s and > 30*(duration of transmission)
Result	Pass	

Channel 01



5 错误!未指定书签。 . **BANDWIDTH TEST**

错误!未指定书签。

错误!未指定书签。 **APPLIED PROCEDURES / LIMIT**

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

LP0002				
Section	Test Item	Limit	Frequency Range (MHz)	Result
4.4.2(2)	Bandwidth(20dB)	$0.25\% * f(\text{MHz})$	433.92	PASS

Bandwidth (20dB) Limit = $0.25\% * f(\text{MHz}) = 0.25\% * 433.92\text{MHz} = 1084.80\text{kHz}$

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	10 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

错误!未指定书签。 **TEST PROCEDURE**

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting: RBW= 10KHz, VBW=30KHz, Sweep time = Auto.

错误!未指定书签。 **TEST SETUP**



错误!未指定书签。 **EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

错误!未指定书签。 **TEST RESULTS**

EUT:	Wireless door sensor	Model Name :	SN1
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3V
Test Mode :	TX CH 01(ASK)	Test Date:	2021-05-08

Test Mode	Test Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	Limit (kHz)	Result
TX	CH 01	433.92	52.01	1084.80	Pass

Channel 01



Transmitter RADIATED EMISSION MEASUREMENT

错误!未指定书签。 **RADIATED (Frequency Range 9kHz-1000MHz)**

EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 3.5, then the 3.6 limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limits (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to LP0002.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

In addition to the provisions of section 3.5, the field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges. The field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750	125 to 375
174-260	3750	375
260-470	3750 to 12500	375 to 1250
Above 470	12500	1250

¹Linear interpolations.

(1.1) 130-174MHz== >51.81818× (Fundamental frequency, MHz)- 6136.3636;

(1.2) 260-470MHz== >41.6667× (Fundamental frequency, MHz)- 7083.3333

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in section 3.6, whichever limit permits a higher field strength.

Fundamental Limit =41.6667 * 433.92MHz-7083.3333 =10996.68116 microvolts/meter (80.83 dBuV/m)

Spurious emissions =1096.6681164 microvolts/meter(60.81 dBuV/m)

The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train.

Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + $20\log$ (Duty cycle), where the duty factor is calculated from following formula:

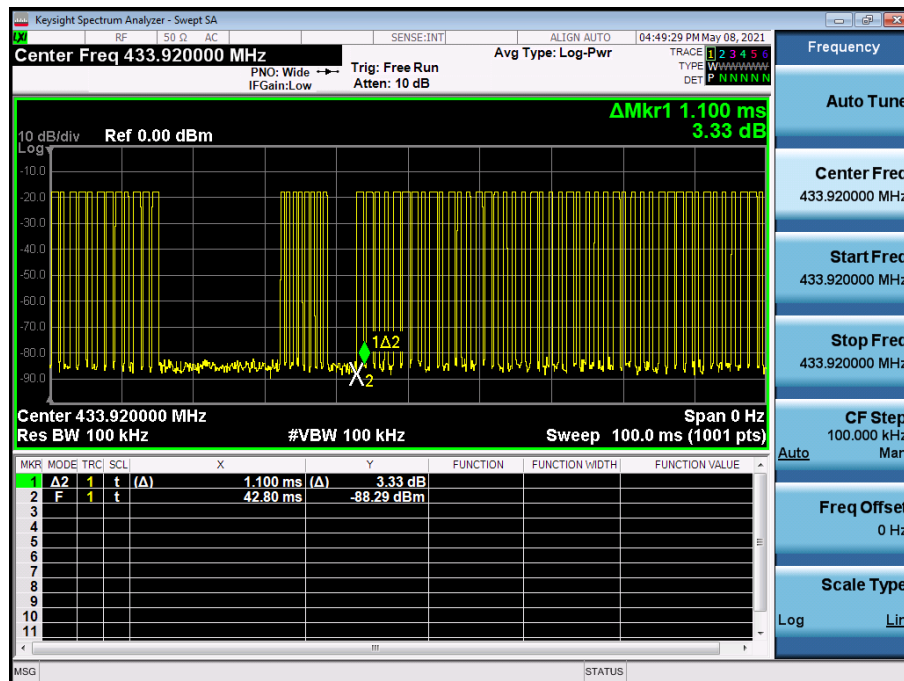
For 433.92 MHz(ASK):

$$20\log (\text{Duty cycle}) = 20\log(T_{pulse}/100) = 20\log(0.011) = -39.17\text{dB}$$

Here $T_{pulse} = 1.1$ (ms)

EUT:	Wireless door sensor	Model Name :	SN1
Temperature:	23 °C	Test Date :	2021-05-08
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX CH 01(ASK)	Test Voltage :	DC 3V

Total On interval in a complete pulse train(ms)	1.1
Length of a complete pulse train(ms)	100
Duty Cycle(%)	1.10%
Duty Cycle Correction Factor(dB)	39.17



FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Frequency measurement range:

1 The spectrum shall be measured from the lowest radio frequency signal generated in the device (without going below 9 kHz), and the upper limit of the measurement range shall be decided according to the maximum operating frequency.

1.1 Maximum operating frequency less than 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

1.2 Maximum operating frequency between 10 GHz~30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

1.3 Maximum operating frequency over 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

2 Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

Spectrum Parameter		Setting	
Attenuation		Auto	
Start Frequency		1000 MHz	
Stop Frequency		10th carrier harmonic	
Measurement	Duty cycle	RBW	Video BW
PK	Any	1MHz	3MHz
AV	$\geq 98\%$	1MHz	10Hz
	$< 98\%$	1MHz	1/T

KDB 558074 Zero-Span Spectrum Analyzer Method

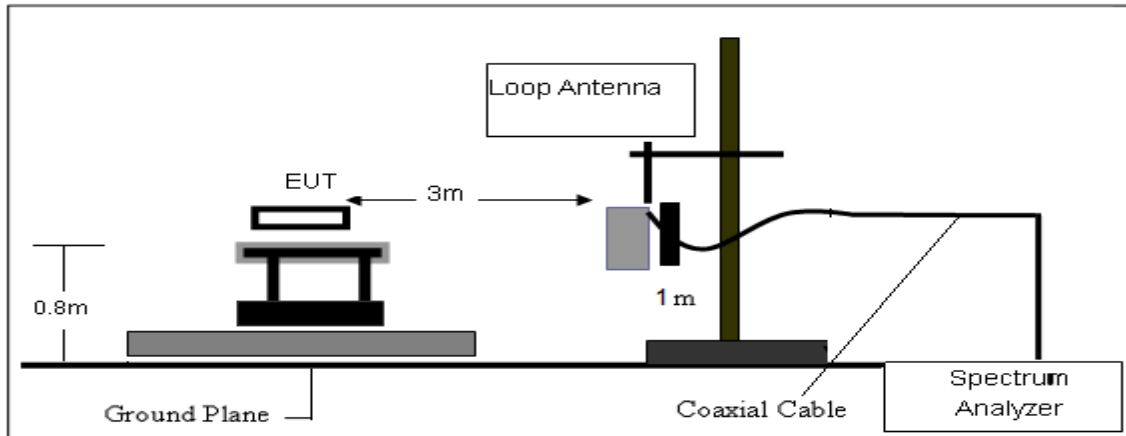
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

错误!未指定书签。 **TEST PROCEDURE**

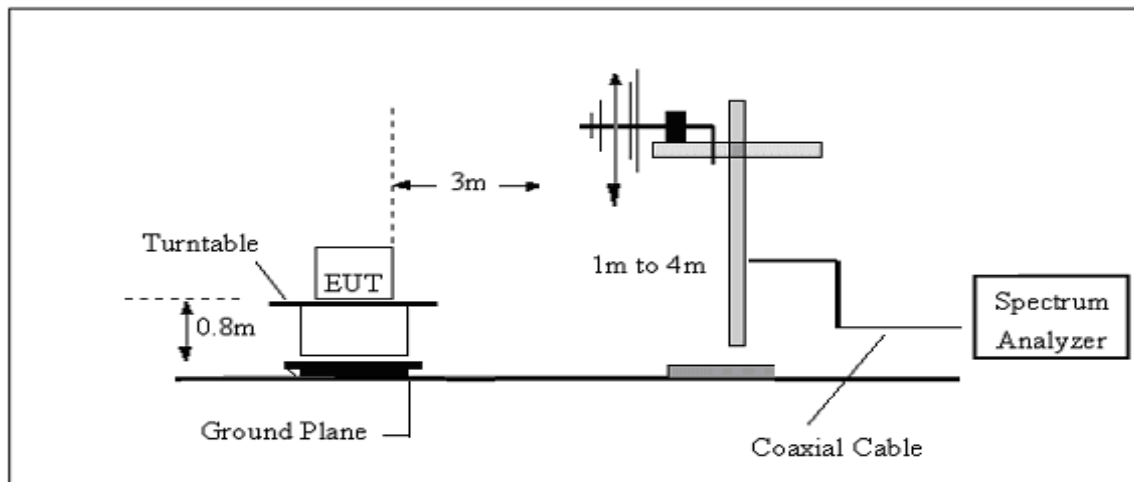
- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

错误!未指定书签。 **TEST SETUP**

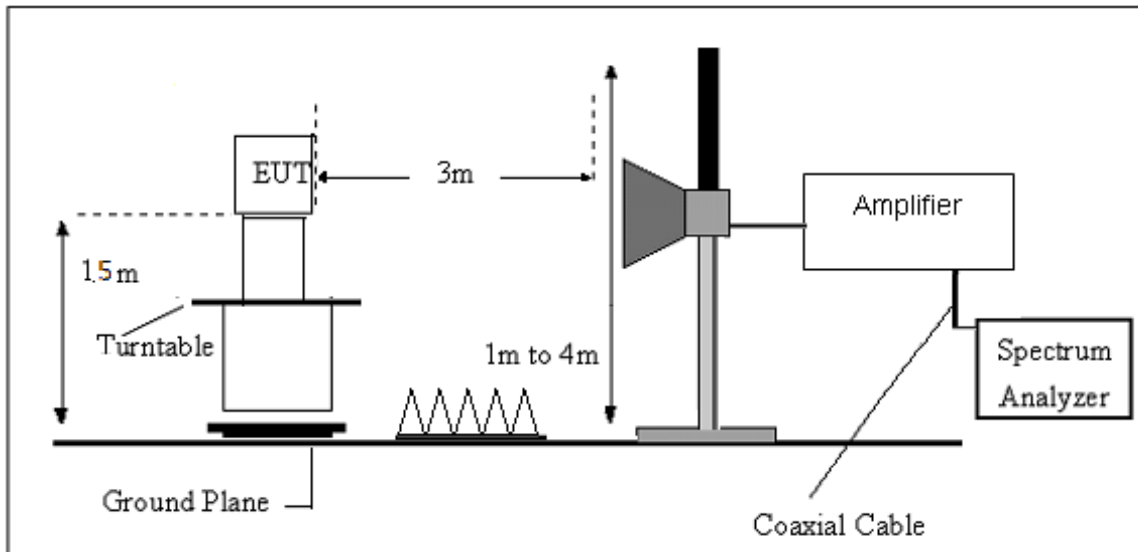
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



错误!未指定书签。 **EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

错误!未指定书签。 **TEST RESULTS (BLOW 30 MHz)**

There is no detected blow 30MHz.

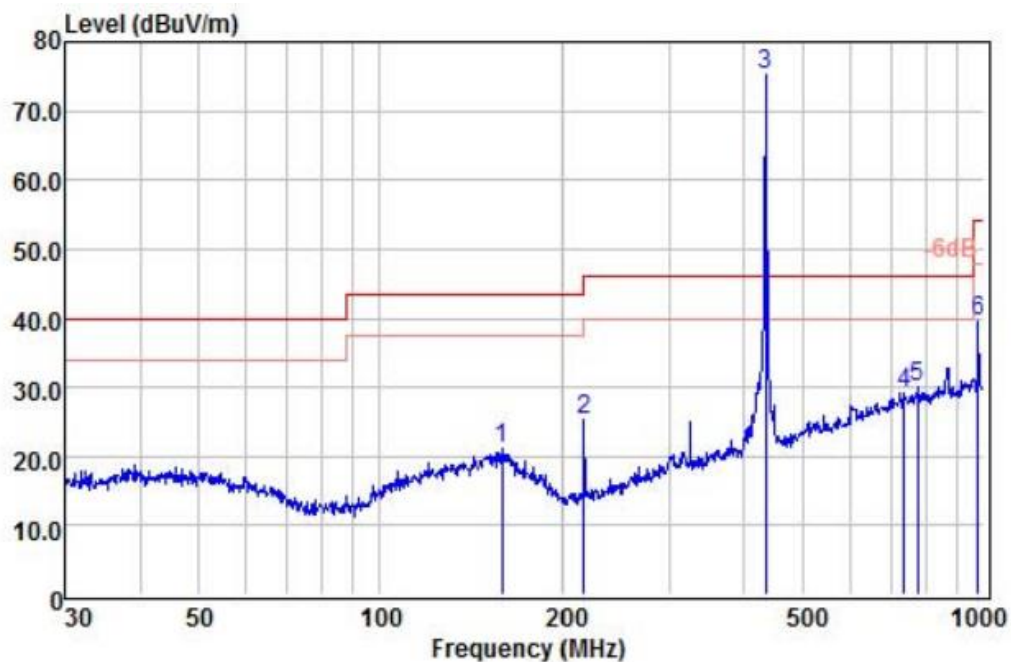
错误!未指定书签。 **TEST RESULTS (ABOVE 30 MHz)**

Note: 根据 LP0002 ,4.4.2.5(2)最大容許電場強度之計算公式如下:

260-470 MHz: Field Strength ($\mu\text{V/m}$) = $(16.6667 \times \text{工作頻率, 單位: MHz}) - 2833.33$

$\text{dBuV/m} = 20 * \text{LOG}_{10}(\mu\text{V/m})$

EUT :	Wireless door sensor	Model Name :	SN1
Temperature :	23.3 °C	Test Data	2021-04-23
Pressure :	1005 hPa	Relative Humidity:	60%
Test Mode :	TX CH 01(ASK)	Test Voltage :	DC 3V
Measurement Distance	3 m	Polarization :	Horizontal
Frequency Range	30MHz to 1GHz		



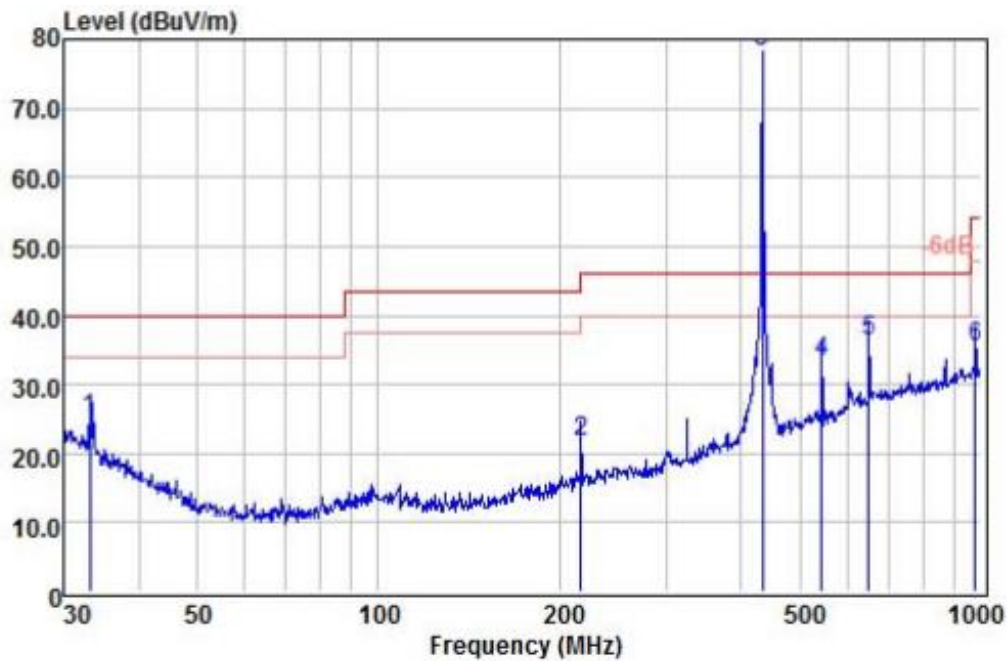
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	159.2300	4.78	16.43	21.21	43.50	-22.29	QP
2	216.7800	14.20	11.00	25.20	46.00	-20.80	QP
4	737.0700	5.78	24.46	29.24	46.00	-16.76	QP
5	776.8800	6.21	23.80	30.01	46.00	-15.99	QP
6	979.1800	13.47	25.98	39.45	54.00	-14.55	QP

Fundamental Frequency

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Duty cycle Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
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3	433.9200	57.80	17.55	-	75.35	92.87	-17.52	peak
7	433.9200	36.22	-	20.14	56.36	72.87	-15.51	QP

EUT :	Wireless door sensor	Model Name :	SN1
Temperature :	23.3 °C	Test Data	2021-04-23
Pressure :	1005 hPa	Relative Humidity:	60%
Test Mode :	TX CH 01(ASK)	Test Voltage :	DC 3V
Measurement Distance	3 m	Polarization :	Vertical
Frequency Range	30MHz to 1GHz		

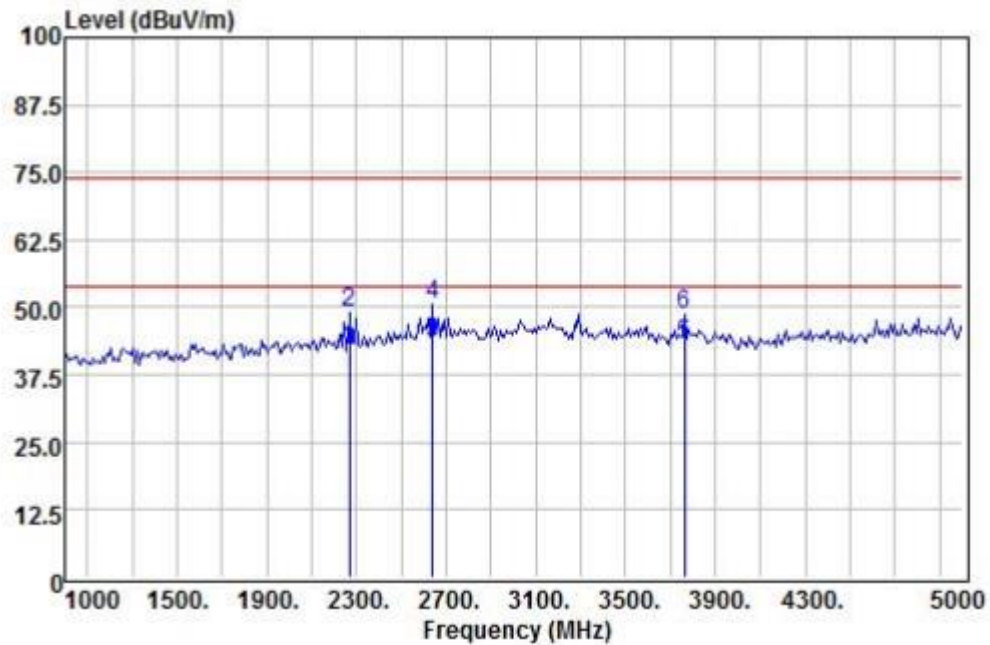


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.2100	11.94	12.99	24.93	40.00	-15.07	QP
2	216.7800	10.61	11.00	21.61	46.00	-24.39	QP
4	543.2700	13.33	19.88	33.21	46.00	-12.79	QP
5	651.9400	14.18	21.97	16.15	46.00	-9.89	QP
6	979.1800	9.32	25.98	35.30	54.00	-18.70	QP

Fundamental Frequency

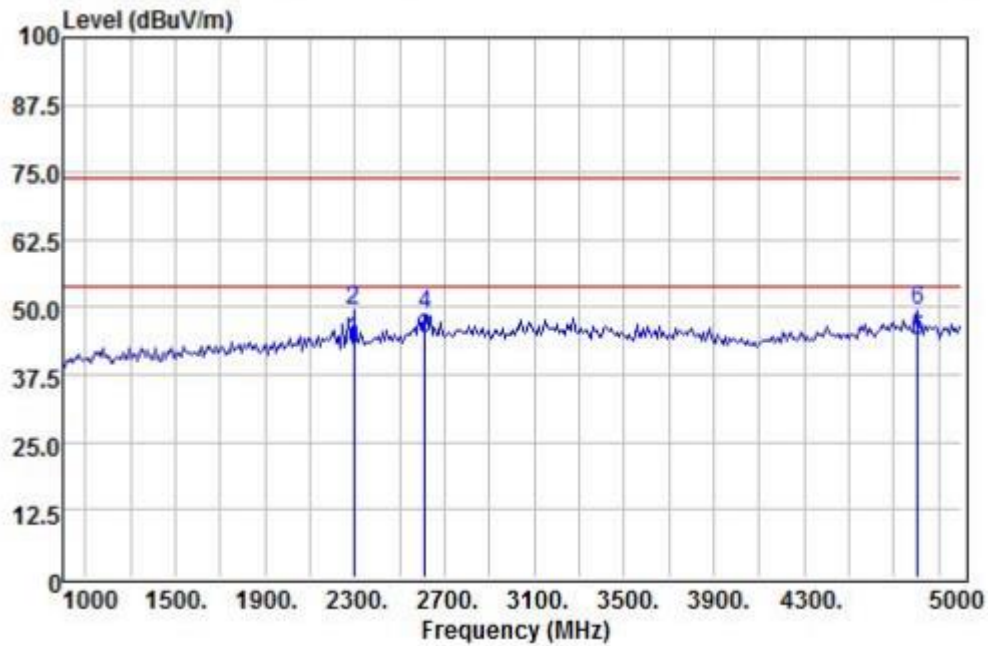
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Duty cycle Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
3	433.9200	60.77	17.55	-	78.32	92.87	-14.55	peak
7	433.9200	41.36	-	17.97	59.33	72.87	-13.54	QP

EUT :	Wireless door sensor	Model Name :	SN1
Temperature :	23.3 °C	Test Data	2021-04-23
Pressure :	1005 hPa	Relative Humidity:	60%
Test Mode :	TX CH 01(ASK)	Test Voltage :	DC 3V
Measurement Distance	3 m	Polarization :	Horizontal
Frenqucy Range	1GHz to 5GHz		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2269.000	43.45	5.49	48.94	74.00	-25.06	peak
2	2269.000	36.96	5.49	42.45	54.00	-15.55	AVG
3	2638.000	44.24	6.33	50.57	74.00	-23.43	peak
4	2638.000	37.11	6.33	43.44	54.00	-10.56	AVG
5	3763.000	41.03	7.68	48.71	74.00	-25.29	peak
6	3763.000	35.26	7.68	42.94	54.00	-11.06	AVG

EUT :	Wireless door sensor	Model Name :	SN1
Temperature :	23.3 °C	Test Data	2021-04-23
Pressure :	1005 hPa	Relative Humidity:	60%
Test Mode :	TX CH 01(ASK)	Test Voltage :	DC 3V
Measurement Distance	3 m	Polarization :	Vertical
Frenqucy Range	1GHz to 5GHz		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2296.000	44.07	5.52	49.59	74.00	-24.41	peak
2	2296.000	38.37	5.52	43.89	54.00	-10.11	AVG
3	2611.000	42.51	6.72	48.78	74.00	-25.22	peak
4	2611.000	38.11	6.72	44.38	54.00	-9.62	AVG
5	4807.000	40.16	9.40	49.56	74.00	-24.44	peak
6	4807.000	34.59	9.40	43.99	54.00	-10.01	AVG

Test result: The unit does meet the NCC requirements.

5. RECEIVER EMISSIONS MEASUREMENT

5.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Frequency Range 9kHz-1000MHz

The radiated limit in the 3.6 table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

Above 1000MHz

FREQUENCY (MHz)	Limits (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to LP0002.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Frequency measurement range:

1 The spectrum shall be measured from the lowest radio frequency signal generated in the device (without going below 9 kHz), and the upper limit of the measurement range shall be decided according to the maximum operating frequency.

1.1 Maximum operating frequency less than 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

1.2 Maximum operating frequency between 10 GHz~30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

1.3 Maximum operating frequency over 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

2 Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

Spectrum Parameter		Setting	
Attenuation		Auto	
Start Frequency		1000 MHz	
Stop Frequency		10th carrier harmonic	
Measurement	Duty cycle	RBW	Video BW
PK	Any	1MHz	3MHz
AV	$\geq 98\%$	1MHz	10Hz
	$< 98\%$	1MHz	1/T

KDB 558074 Zero-Span Spectrum Analyzer Method

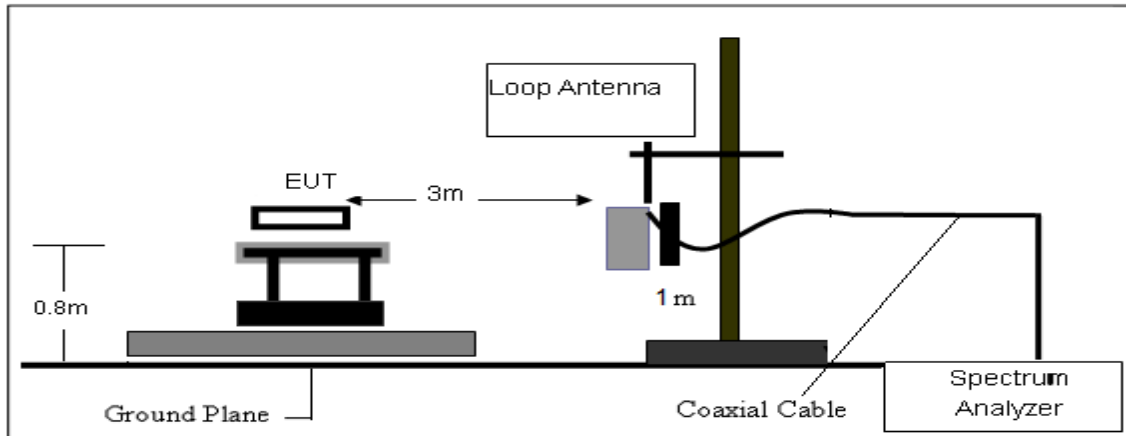
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

5.1.1 TEST PROCEDURE

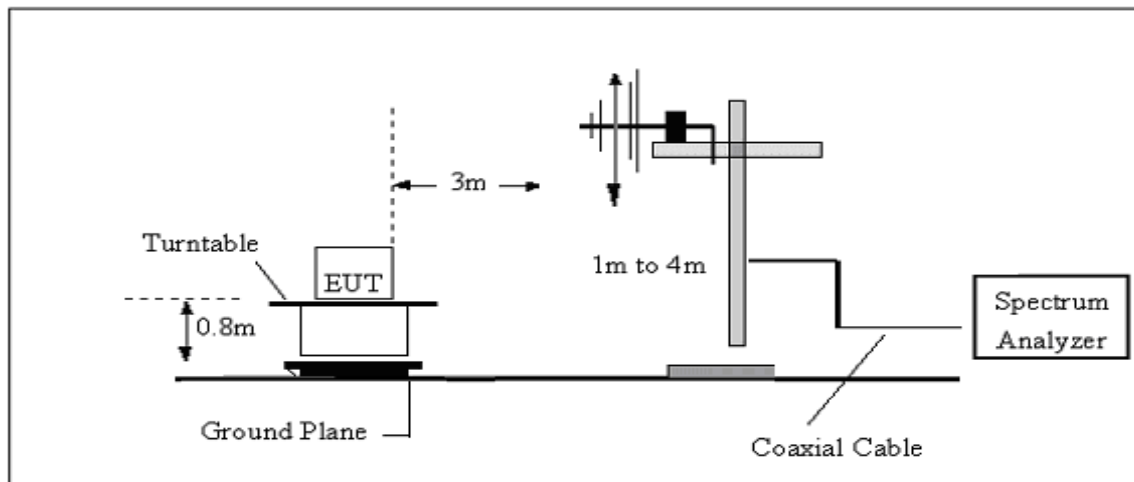
- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.1.2 TEST SETUP

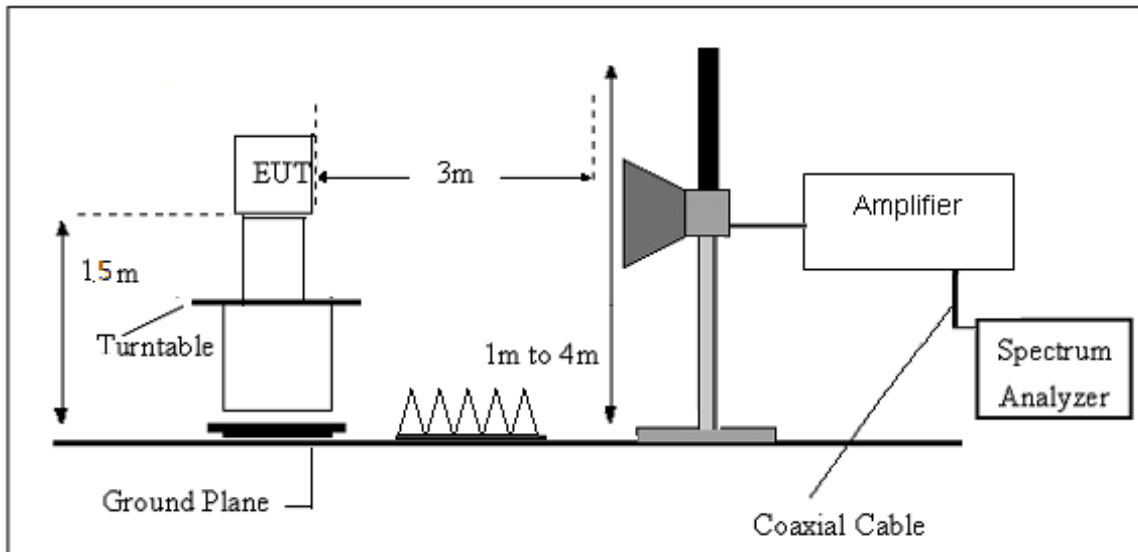
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

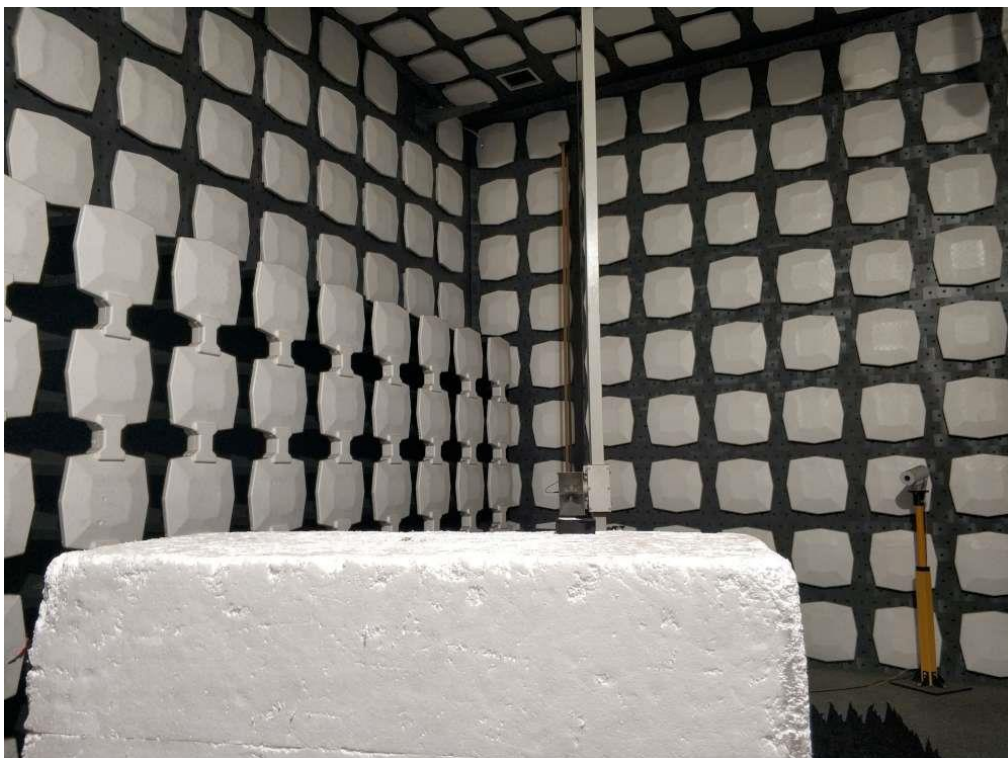


5.1.3 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.4 TEST RESULTS

The product has no receiving function, the test is not applicable in this Test Report

6. EUT TEST SETUP PHOTO**Radiated Measurement Photos
30MHz-1GHz****1GHz-5GHz**

****End of report****