



Shenzhen Huaxin Information Technology Service Co., Ltd

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MIC TEST REPORT

Report No. : HX250616R001

Applicant : Shenzhen TELEVAY Technologies Co., Ltd.

Address : 13th Floor, Building1, Radio and Television Cultural and Creative IndustryPark, Longhua District, Shenzhen, China

Manufacturer : Shenzhen TELEVAY Technologies Co., Ltd.

Address : 13th Floor, Building1, Radio and Television Cultural and Creative IndustryPark, Longhua District, Shenzhen, China

Product Name : Mobile DVR

Trade Mark : /

Model/Type reference : D81H

Listed Model(s) : D41H

Standard : Article 2, Paragraph 1, Item 19

Date of receipt of test sample... : Jun. 09, 2025

Date of testing : Jun. 09, 2025 ~ Jun. 23, 2025

Date of issue : Jun. 24, 2025

Result : PASS

Compiled by:

(Printed name + signature)

Terry Su



Approved by:

(Printed name + signature)

Michael Wu

Testing Laboratory Name : Shenzhen Huaxin Information Technology Service Co., Ltd

Address : 101, R & D Building, No.3 guansheng 4th Road, Luhuhu Community, Guanhu Street, Longhua District, Shenzhen, Guangdong, China

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1. SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[Test method which is equal to Appendix No.43 of MIC Notification No 88.](#)

1.2. Report version

Revised No.	Date of issue	Description
01	Jun. 24, 2025	Original

1.3. Test Description

MIC Notice No.88 Appendix No.43 Article 2, Paragraph 1, Item 19 Rules Section	Test Item	Result	Test Engineer
3	Frequency Error	Pass	Sain Liao
4	Occupied Bandwidth and Spreading Bandwidth	Pass	Sain Liao
5	Transmitter Spurious Emission and Unwanted Emission Intensity	Pass	Sain Liao
6	Antenna Output Power and Output Power Tolerance	Pass	Sain Liao
7	Receiver Spurious Emission and Unwanted Emission Intensity	Pass	Sain Liao
8	Radio Interference Prevention Capability	Pass	Sain Liao
9	Frequency Hopping Dwell Time	N/A Note 1	N/A
10	Carrier Sense Capability	Pass	Sain Liao
11	Construction Protection Confirmation	Pass	Sain Liao
12	Transmission Radiation Angle Width (3dB Beamwidth)	Pass	Sain Liao

N/A^{Note 1}: Testing is only required OFDM system with occupied frequency bandwidth below 38MHz and exceed 26MHz.



1.4. Test Facility

Shenzhen Huaxin Information Technology Service Co., Ltd

Add: 101, R & D Building, No.3 guansheng 4th Road, Luhua Community, Guanhu Street, Longhua District, Shenzhen, Guangdong, China

Laboratory accreditation

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

A2LA-Lab Cert. No.: 6855.01

Shenzhen Huaxin Information Technology Service Co., Ltd EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Company Number: 31786, CAB Identifier: CN0147)

Shenzhen Huaxin Information Technology Service Co., Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 31786.

FCC (Registration No.: 932271, Designation Number CN1344)

Shenzhen Huaxin Information Technology Service Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC)Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration NO.: 932271.

1.5. Measurement Uncertainty

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR100028-1 [2] and shall correspond to an expansion factor (coverage factor) $K=1.96$ or $K=2$ (which provide confidence levels of respectively 95% and 95.5% in the case where the distributions characterizing the actual measurement uncertainties are normal).

Parameter	Uncertainty
RF frequency	$\pm 79\text{Hz}$
Total RF power, conducted	$\pm 0.60\text{dB}$
Spurious emissions, conducted	$\pm 1.4\text{dB}$
DC and low frequency voltages	$\pm 3.70\%$
Humidity	$\pm 3\%$
Temperature	$\pm 5\%$



2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Voltage	Normal Voltage	DC 12.0V
	High Voltage	DC 32.0V
	Low Voltage	DC 9.0V
Other	Normal Temperature/T _{nor} :	23°C
	Relative Humidity	57 %
	Air Pressure	101kPa

2.2. Client Information

Applicant:	Shenzhen TELEVAY Technologies Co., Ltd.
Address:	13th Floor, Building1, Radio and Television Cultural and Creative IndustryPark, Longhua District, Shenzhen, China
Manufacturer:	Shenzhen TELEVAY Technologies Co., Ltd.
Address:	13th Floor, Building1, Radio and Television Cultural and Creative IndustryPark, Longhua District, Shenzhen, China



2.3. General Description of EUT

Product Name:	Mobile DVR
Trade Mark:	/
Model/Type reference:	D81H
Listed Model(s):	D41H
Model Different:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is the number of video input channels and size of the interface.
Power supply:	12dc and 24Vdc from external power supply
Hardware version:	/
Software version:	/
Supported type:	802.11b/ 802.11g/ 802.11n(HT20)/ 802.11n(HT40)/ 802.11ax(HE20)
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/ n/ ax: OFDM(BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Operation frequency:	802.11b/ g/ n(HT20)/ ax(HE20): 2412MHz~2472MHz 802.11n(HT40): 2422MHz~2462MHz
Channel number:	802.11b/ g/ n(HT20)/ ax(HE20): 13 channels 802.11n(HT40): 9 channels
Number of subcarriers per MHz for OFDM (Max):	12
Antenna type:	External Antenna
Antenna gain:	-0.21dBi Max



2.4. Description of Test Modes

The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing, Only Full RU supported in 802. 11ax mode.

Operation Frequency List 2.4G Band WIFI:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		

Note: The 802.11b/802.11g/802.11n(HT20)/802.11ax(HE20) were selected 1/7/13 channel to perform the test,802.11n(HT40) were selected 3/7/11 channel to perform the test.

Operation Mode:

802.11b	IEEE 802.11b with data rate of 1Mbps
802.11g	IEEE 802.11g with data rate of 6Mbps
802.11n(HT20)	IEEE 802.11n20 with data rate of HT-MSC0 for bandwidth 20MHz
802.11n(HT40)	IEEE 802.11n40 with data rate of HT-MSC0 for bandwidth 40MHz
802.11ax(HE20)	IEEE 802.11ax20 with data rate of HE-MSC0 for bandwidth 20MHz



2.5. Measurement Instruments List

Item	Test Equipment	Manufacturer	Model No.	Versions/ Serial No.	Cal. Date	Cal. Until	Cal. By
1	Spectrum Analyzer	Agilent	N9020A	MY51280803	Apr. 09, 2025	Apr. 08, 2026	LiSai
2	Wideband Radio Communication Tester	R&S	CMW500	157763	Apr. 09, 2025	Apr. 08, 2026	LiSai
3	MXG Vector Signal Generator	Agilent	N5182A	101795	Apr. 09, 2025	Apr. 08, 2026	LiSai
4	EXG Analog Signal Generator	Agilent	N5181A	MY47421151	Apr. 09, 2025	Apr. 08, 2026	LiSai
5	RF Sensor Unit	Techy	TR1029-2	20220428P009	Apr. 09, 2025	Apr. 08, 2026	LiSai
6	High and low temperature test chamber	Asprey	LX-225L	2020091401	Apr. 09, 2025	Apr. 08, 2026	LiSai
7	SRD Test Software	TACHOY	RTS	V1.0.0	/	/	/
8	2G/3G/4G Test Software	TST	TST-PASS	V2.0	/	/	/

Note: 1. Calibration conducted in foreign countries, which is equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)

2. Full name of LiSai: Guangzhou LiSai Metrology & Test Co., Ltd.



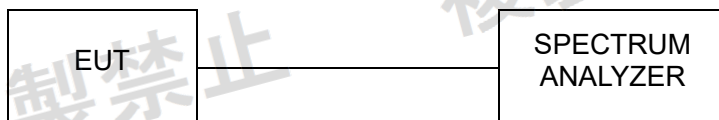
3. TEST CONDITIONS AND RESULTS

3.1. Frequency Error

LIMIT

±50ppm

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: No modulation

Spectrum Condition:

Frequency: Test frequency

Span: Show the entire waveform

RBW: 10 kHz

VBW: 10 kHz

Sweep time: Auto

Detector mode: Peak

Indication mode: Max hold

TEST RESULTS

Please see the Appendix.



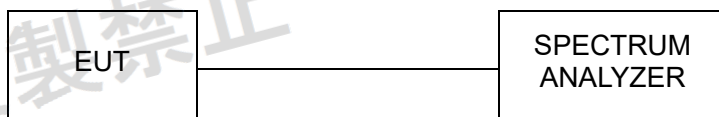
3.2. Antenna Power

LIMIT

- ≤ 3 mW/MHz (FHSS from 2402-2480 MHz)
- ≤ 5 mW/MHz (OFDM(26MHz <Occupied Bandwidth <38MHz) from 2400-2483.5 MHz)
- ≤ 10 mW (Other from 2400-2483.5 MHz)

The Output Power Tolerance must be within +20%.

TEST CONFIGURATION



TEST PROCEDURE

- 1) Search Frequency of Peak Power

Test Frequency: test channel,

RBW = 1MHz, VBW = 3MHz, Span > Occupied bandwidth, Sweep time=Auto, Detector mode =Positive peak

- 2) Measure of average burst power

Test Frequency: frequency of peak power

RBW = VBW = 1MHz, Span=0Hz, Sweep time=Auto, Detector mode=RMS

Antenna power= average burst power

TEST RESULTS

Please see the Appendix.

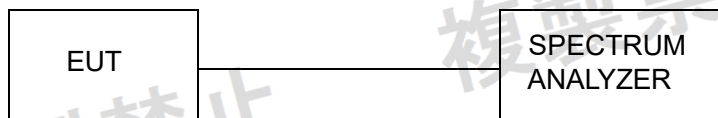


3.3. Occupied Bandwidth

LIMIT

- Occupied bandwidth: FH $\leq$ 83.5 MHz; OFDM $\leq$ 38MHz; DS $\leq$ 26 MHz

TEST CONFIGURATION



TEST PROCEDURE

1. Setting of SA is following as follow:
RBW: 300 kHz
VBW: 300 kHz
Sweep time: Auto
Sweep Mode: Continuous sweep
Detect mode: Peak
Trace mode: Max hold
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.

TEST RESULTS

Please see the Appendix.

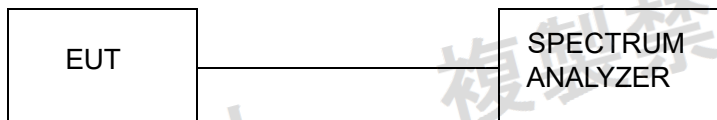


3.4. Spreading Bandwidth

LIMIT

- Spread Bandwidth: ≥ 500 kHz.

TEST CONFIGURATION



TEST PROCEDURE

1. Setting of SA is following as follow:
RBW: 300 kHz
VBW: 300 kHz
Sweep time: Auto
Sweep Mode: Continuous sweep
Detect mode: Peak
Trace mode: Max hold
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure spread bandwidth.

TEST RESULTS

Please see the Appendix.

Note: Spreading Rate=Spread Bandwidth/modulation rate. The modulation rate: MR=1.375 for 802.11b.



3.5. Transmitter Spurious Emission Strength and Unwanted Emission Intensity

LIMIT

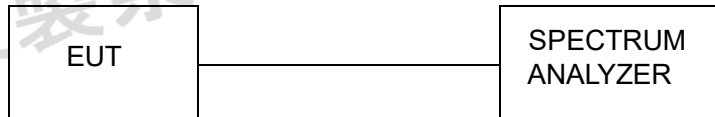
30MHz to 2387 MHz: 2.5 μ W/MHz (-26dBm) or less

2387 to 2400 MHz: 25 μ W/MHz (-16dBm) or less

2483.5 Through 2496.5 MHz: 25 μ W/MHz (-16dBm) or less

Over 2496.5 MHz: 2.5 μ W/MHz (-26dBm) or less

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: Modulation

Spectrum Condition:

Frequency: 30MHz-13GHz

RBW: 1MHz

VBW: $\geq$ RBW

Sweep time: Auto

Detector mode: Peak

Indication mode: Max hold

TEST RESULTS

Please see the Appendix.



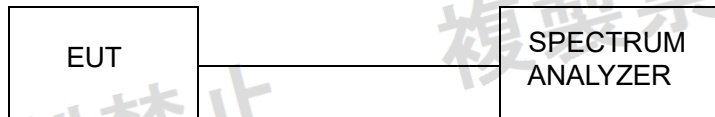
3.6. Receiver Spurious Emission and Unwanted Emission Intensity

LIMIT

Below 1GHz: 4.0nW (-54dBm) or less

Above 1GHz: 20nW (-47dBm) or less

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: Modulation

Spectrum Condition:

Frequency: 30MHz-12.75GHz

RBW: 100kHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)

VBW: 100kHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)

Sweep time: Auto

Detector mode: Peak

Indication mode: Max hold

TEST RESULTS

Please see the Appendix.



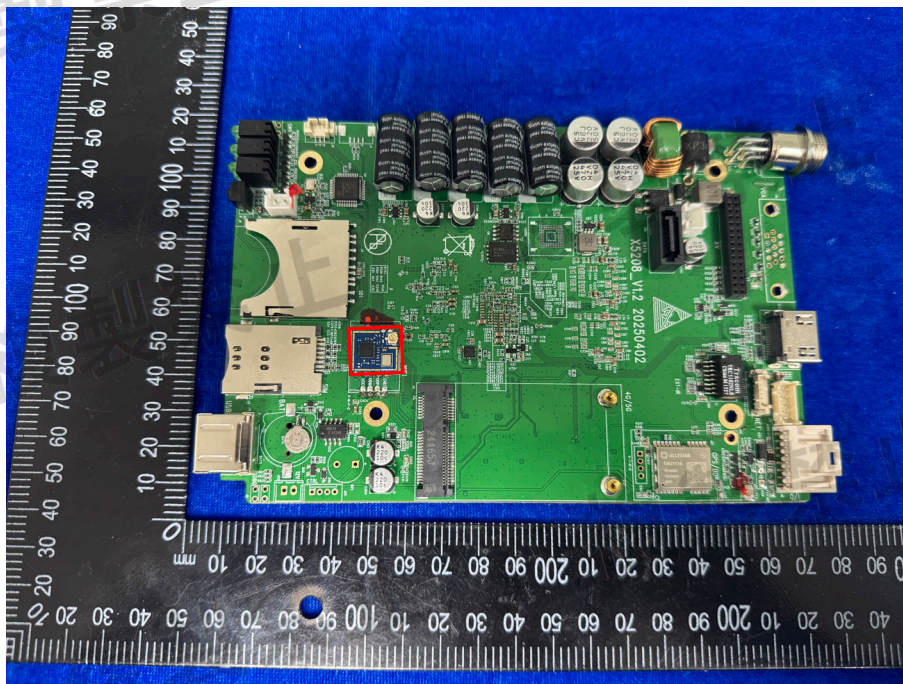
3.7. Construction protection confirmation method

Requirement

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily

Confirmation method

RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable parts on PCB or adjustable parts are not exposed, So the end user can not to modify or change the RF Parts easily, please refer the following photo.



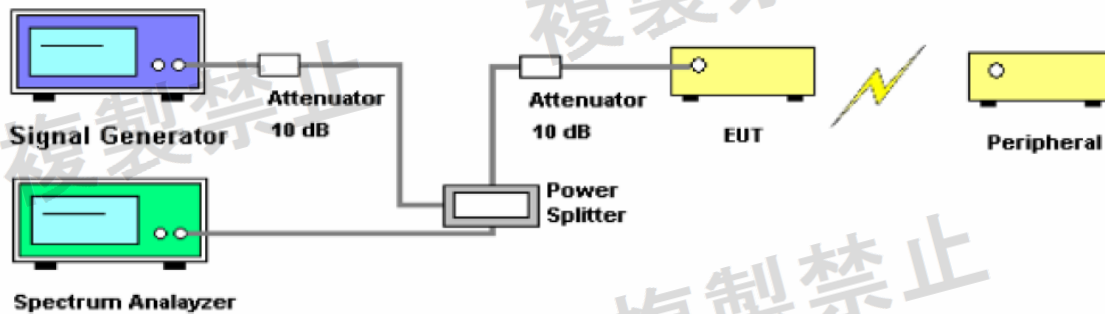


3.8. Carrier Sense Capability

Limit

EUT stop RF transmission signal after carrier inject to EUT and continue to transmit when inference signal turned off for the OFDM system with occupied frequency bandwidth below 38MHz and exceed 26MHz.

TEST CONFIGURATION



TEST PROCEDURE

1. Set The EUT state in "normal mode link with wireless router".
2. SG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SG and power level is $(on\ 22.79 + G - 20 \cdot \log^{(f)}\ dBm)$ (G is the antenna gain is the test frequency)
(^(f)): Test frequency, Unit: MHz
3. Turn off the RF signal of the SG.
4. EUT have transmitted the maximum modulation signal and fixed channelize.
5. Setting the spectrum as follow:
RBW/VBW=1MHz/1MHz
Span=80MHz
Sweep time=auto
Sweep mode=continuous
Detect mode=positive peak
6. SG RF signal on.
7. EUT shall be stop the transmitted any signal and SG RF signal off, the EUT will be continuous transmitted signal.

TEST RESULTS

☒ Passed ☐ Not Applicable

Note: Radio interference prevention capability was conformed.



3.9. Interference Prevention Function

Module apply DSSS technique, in which the message signal is used to modulate a bit sequence known as the Pseudo Noise (PN) code; this PN code consists of pulses of a much shorter duration (larger bandwidth) than the pulse duration of the message signal, therefore the modulation by the message signal has the effect of chopping up the pulses of the message signal and thereby resulting in a signal which has a bandwidth nearly as large as that of the PN sequence. In this context the duration of the pulse of the PN code is referred to as the chip duration and the smaller this value, the larger the bandwidth of the resultant DSSS signal and the more immune to interference the resultant signal becomes.

TEST PROCEDURE

1. Connect the EUT to the computer.
2. Enter the "ifconfig" command, View wireless details.

We can get the information as follows:

1E:D7:E8:CD:2E:32

TEST RESULTS

```
Telnet 192.168.0.213
(none) login: root
Password:
Welcome to Linux.
~ # ifconfig
eth0      Link encap:Ethernet  HWaddr 1E:D7:E8:CD:2E:32
          inet addr:192.168.0.213  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::1cd7:e8ff:fe3d:2e32/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:195 errors:0 dropped:0 overruns:0 frame:0
          TX packets:34 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:35133 (34.3 KiB)  TX bytes:2186 (2.1 KiB)
          Interrupt:37

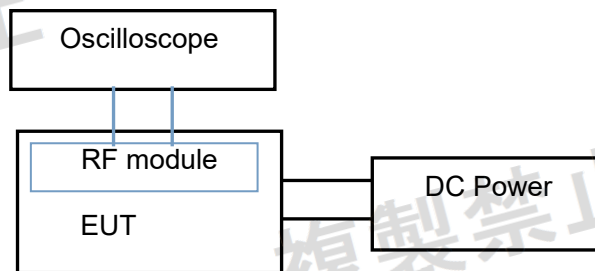
~ # ifconfig /all
ifconfig: /all: error fetching interface information: Device not found
~ #
```



3.10. Condition for Voltage Stabilization

- In the case of a characteristic test in the technical regulations conformity certification, the power supply supplies the voltage rating
- Other cases
The power supply supplies the voltage rating and the rating. However, when it can be confirmed that the change of the input voltage to the wireless part circuit of the testing machine is 1% or less when the input voltage to the testing machine from the external source changes at 10%, examines it only by the voltage rating.

TEST CONFIGURATION



TEST PROCEDURE

1. Use the DC power supplies the EUT, set the output power 12.0V.
2. Connect the RF module power input ports to the Oscilloscope, record the voltage value.
3. Set respectively the DC power output 32.0V, 24.0V and 9.0V, record the Oscilloscope's voltage values.

EUT supply power	RF module input power	Rated RF module power	Tolerance (%)
12.0V	3.30V	3.30V	0
32.0V	3.30V	3.30V	0
9.0V	3.30V	3.30V	0
24.0V	3.30V	3.30V	0

Conclusion: The input voltage for EUT is 9Vdc ~ 32Vdc, the change of the input voltage to RF Module circuit of EUT is less 1%, another test item only need to test for normal condition.



3.11. Transmission Radiation Angle Width (3DB Beamwidth) Measurement

Limit

Item	Limits (See Article 49-20, Item1-f of the Ordinance Regulating Radio Equipment)
3dB antenna beam width	$360/A$ (if $A < 1$; then $A = 1$) $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$

Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span	0 MHz
RBW	1 MHz
VBW	1 kHz
Y scale	5 dB
Detector	Peak
Trace	Max Hold

Test Procedures

Test method which surpass to Clause 22 of Annex No.43 of MIC Notification No.88.

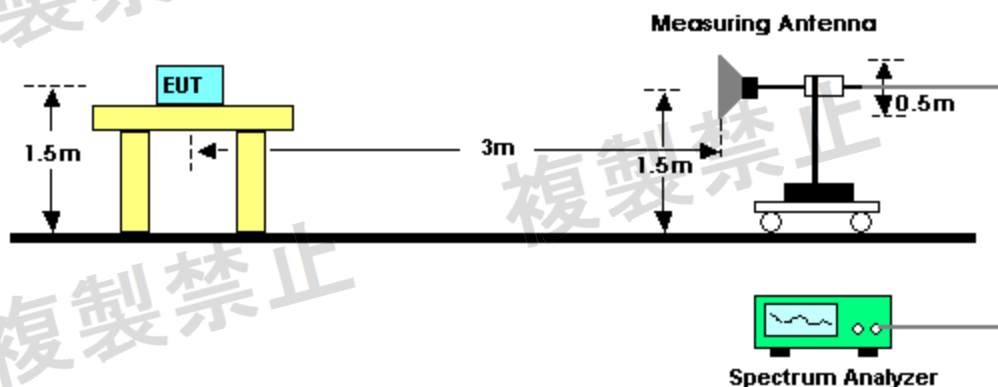
1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.

6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$).

$A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or

$A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

Test Setup Layout

**Test Result of Transmission Radiation Angle Width (3dB Beamwidth)**

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 22
Results:	Pass

Antenna Power	Antenna			
A (dBm)	Type	Gain B (dBi)	3dB Beam-width Horizontal (Degree)	3dB Beam-width Vertical (Degree)
2.59	External Antenna	-0.21	/	/

EIRP $F=A+B$ (dBm)	Permitted Angle (Degree)	Result
2.38	360.00	Pass

Note: Because EIRP < 12.14dBm, So 3dB Beam-width(Degree) does not need to be tested.

*****THE END*****