



MEASUREMENT REPORT

EMC Test Report

Applicant: Compex Systems Pte Ltd

Address: No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

Product: WIRELESS ACCESS POINT

Model No.: WPJ342LV, WPJ342LV-A, WPJ342HV, WPJ342HV-A, WPJ342-GE, MML342LV, MML342LV-A, MMJ342LV, MMJ342LV-A, MMJ342HV, MMJ342HV-A, MMS342LV, MMS342LV-A, MMS342HV, MMS342HV-A

Brand Name: COMPEX

Standards: EN 55032: 2015
EN 301 489 - 1 V2.2.0 (2017-02)
EN 301 489 - 17 V3.2.0 (2017-02)

Result: Complies

Test Date: June 24 ~ July 11, 2017

Reviewed By : Jame Yuan
(Jame Yuan)

Approved By : Marlinchen
(Marlin Chen)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1706RSU02201	Rev. 01	Initial report	07-11-2017	Valid

Note: The product has no change in hardware and software and only upgrades the EMC rules version as below. The was based on MRT Report number is 1407RSU04206 and we added the radiated emission & radio-frequency electromagnetic field testing, any others were same as before.

Old Rules Version	New Rules Version
ETSI EN 301 489 - 1 V1.9.2	ETSI EN 301 489 - 1 V2.2.0
ETSI EN 301 489 - 17 V2.2.1	ETSI EN 301 489 - 17 V3.2.0
EN 55022: 2010/AC: 2011	EN 55032: 2015

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1. General Information

1.1. Applicant

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.2. Manufacturer

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.3. Testing Facility

Test Site

MRT Technology (Suzhou) Co., Ltd

Test Site Location

D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



1.4. Feature of Equipment under Test

Product Name:	WIRELESS ACCESS POINT
Model No.:	WPJ342LV, WPJ342LV-A, WPJ342HV, WPJ342HV-A, WPJ342-GE, MML342LV, MML342LV-A, MMJ342LV, MMJ342LV-A, MMJ342HV, MMJ342HV-A, MMS342LV, MMS342LV-A, MMS342HV, MMS342HV-A
Brand Name:	COMPEX
Wi-Fi Specification:	802.11a/n-HT20 5180 ~ 5240MHz; 5260 ~5320MHz; 5500 ~ 5700MHz; 5745 ~ 5825 MHz 802.11n-HT40MHz 5190 ~ 5230MHz; 5270 ~5310MHz; 5510 ~ 5670MHz
Components	
Adapter	Power Over Ethernet (Gigabit) M/N: HS36-2401250EU Input: 100-240V ~ 50/60Hz 1.0A Output: +24V ~ 1.25A
Adapter	Gigabit POE Injector Manufacturer: KANG PEI M/N: POEGP2408 Input: 100-240V ~ 50/60Hz 1.0A Output: +24V ~ 0.8A

Note: The difference of models is for different marketing requirement.

1.5. Standards Applicable for Testing

The EUT complies with the requirements of EN 301 489 - 1 V2.2.0 & ETSI EN 301 489 - 17 V3.2.0 & EN 55032: 2015 Class B.

EMI Test:

EN 55032: 2015 (Radiated Emission)

EMS Test:

EN 61000-4-3: 2006+A1:2008+A2:2010 (RS)

1.6. Performance Criteria

General Requirements (ETSI EN 301489-1):

The performance criteria are used to take a decision on whether radio equipment passes or fails immunity tests.

For the purpose of the present document four categories of performance criteria apply:

- Performance criteria for continuous phenomena applied to transmitters and receivers;
- Performance criteria for transient phenomena applied to transmitters and receivers;
- Performance criteria for equipment which does not provide a continuous communication link;
- Performance criteria for ancillary equipment tested on a stand alone basis.

Normally, the performance criteria depend on the type of radio equipment. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment. More specific and product-related performance criteria for a dedicated type of radio equipment may be found in the part of ETSI EN 301 489 series [i.13] dealing with the particular type of radio equipment.

Performance criteria for continuous phenomena applied to transmitters and receivers

If no further details are given in the relevant part of ETSI EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for continuous phenomena shall apply.

During and after the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the test the EUT shall not unintentionally transmit or change its actual operating state and stored data.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

Performance criteria for transient phenomena applied to transmitters and receivers

If no further details are given in the relevant part of ETSI EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

- For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
- For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

For all other ports the following applies:

- After the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.
- During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or stored data is allowed.
- If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

Performance criteria for equipment which does not provide a continuous communication link

For radio equipment which does not provide a continuous communication link, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.

Performance criteria for ancillary equipment tested on a stand-alone basis

If ancillary equipment is intended to be tested on a standalone basis, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.

Special Performance Requirements (ETSI EN 301489-17):

The performance criteria are:

- performance criteria A for immunity tests with phenomena of a continuous nature;
- performance criteria B for immunity tests with phenomena of a transient nature;
- performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following clauses.

Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

EN 301 489 -17 Performance criteria		
Criteria	During Test	After test
A	Shall operate as intended. (see note 1). Shall be no loss of function. Shall be no unintentional transmissions	Shall operate as intended. Shall be no degradation of performance (see note 3). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 2). Shall be no unintentional transmissions	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3). Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more)	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3).

Note 1: Operate as intended during the test allows a level of degradation not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

Note 2: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance.

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

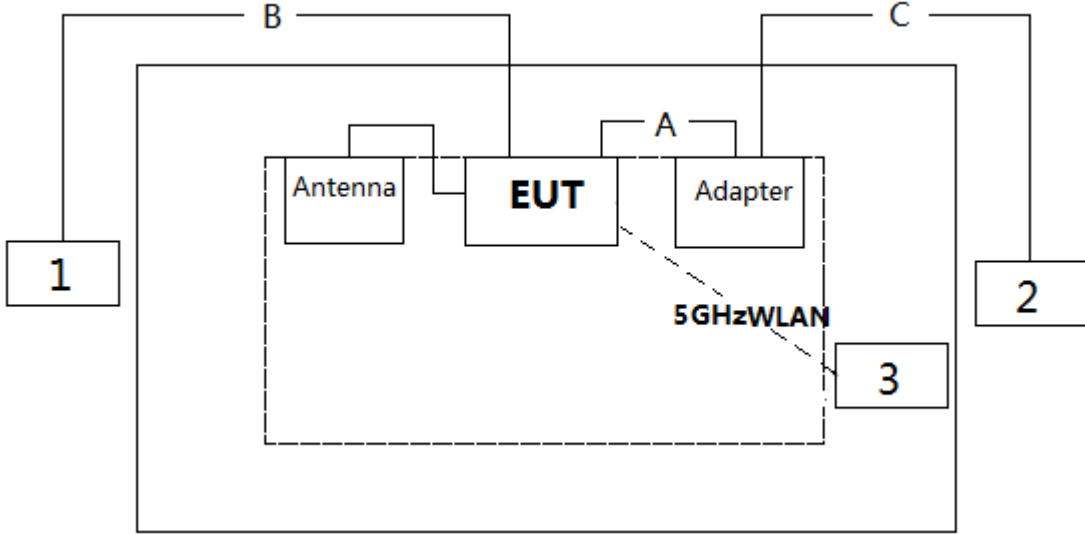
Note 3: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

2. Test Configuration of Equipment under Test

2.1. Test Mode

Test Mode	
EMI Mode	Mode 1: Communication (Powered by Adapter 1#)
	Mode 2: Communication (Powered by Adapter 2#)
EMS Mode	Mode 1: Communication (Powered by Adapter 1#)
	Mode 2: Communication (Powered by Adapter 2#)

2.2. Configuration of Tested System

Connection Diagram (Mode 1~2)		
		
Signal Cable Type	Signal Cable Description	
A	LAN Cable	Non-shielding, 0.5m
B	LAN Cable	Non-shielding, >10m
C	LAN Cable	Non-shielding, >10m

2.3. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Personal Computer	DELL	Vostro270	N/A	Non-Shielded, 1.8m
2 Personal Computer	DELL	Vostro270	N/A	Non-Shielded, 1.8m
3 Notebook	Lenovo	E430c	MP-4CFX213/10	Non-Shielded, 1.8m

2.4. Test Procedure

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Making EUT communicate with PC by LAN cable and communicate with notebook by Wi-Fi.

3. Test Summary

Test Reference Standard	Test Item	Result (Pass/Fail)	Remark
Emission Measurements			
EN 55032	Radiated Emission	Pass	--
Immunity Measurements			
EN 61000-4-3	Radio-Frequency Electromagnetic Field	Pass	--

4. Radiated Emission

4.1. Limit of Radiated Emission

Frequency range MHz	Quasi-peak limits dB(μ V/m)
30 to 230	40
230 to 1000	47

Note 1: The lower limit shall apply at the transition frequency.

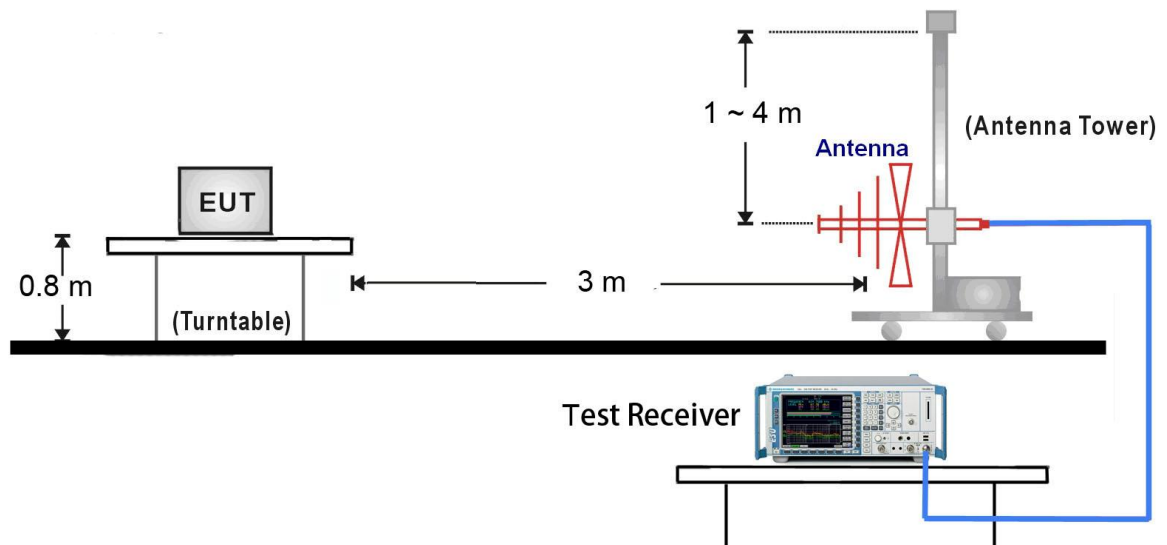
Note 2: Additional provisions may be required for cases where interference occurs.

Frequency range GHz	Average limit dB(μ V/m)	Peak limit dB(μ V/m)
1 to 3	50	70
3 to 6	54	74

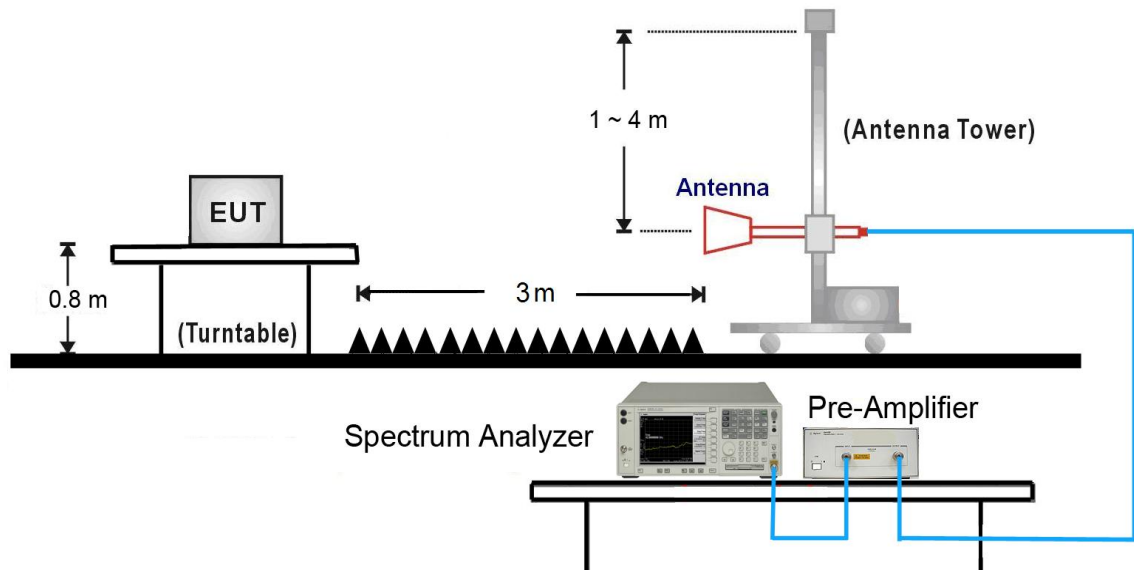
Note: The lower limit applies at the transition frequency.

4.2. Test Setup

30 ~ 1000 MHz



1000 ~ 6000 MHz



Note: About the radiated test setup, the EUT and local AE shall be arranged in the most compact practical arrangement within the test volume, while respecting typical spacing and the requirements defined in EN55032 Annex D. The central point of the arrangement shall be positioned at the centre of the turntable. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and the calibration point of the antenna. See below Figure 1 and Figure 2.

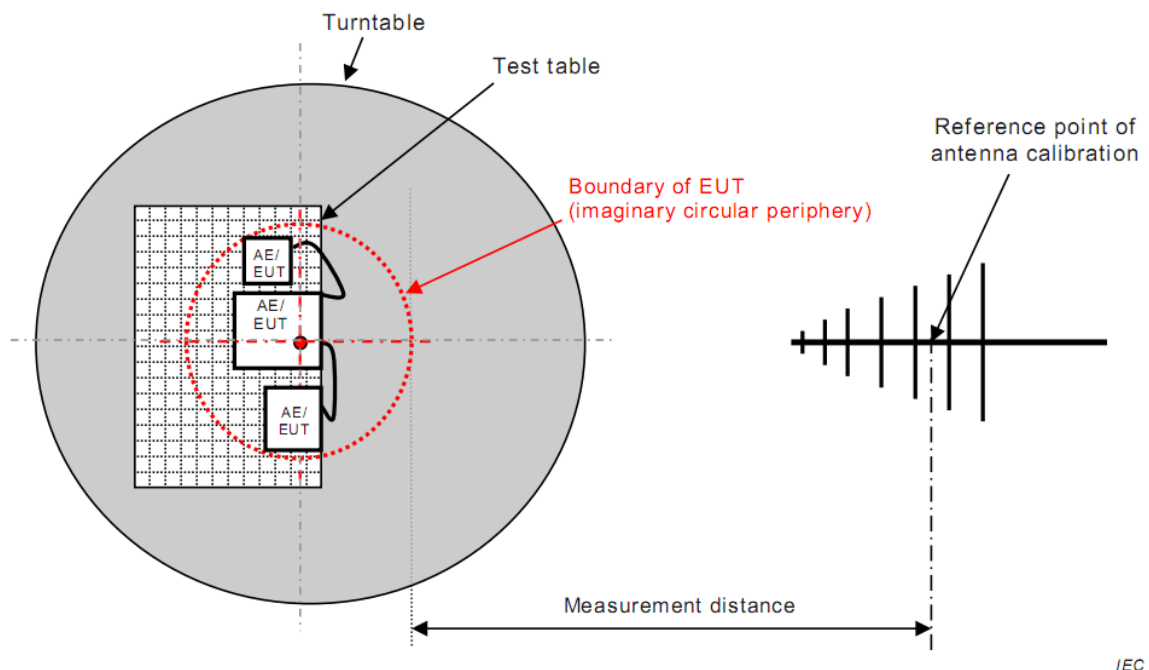


Figure 1

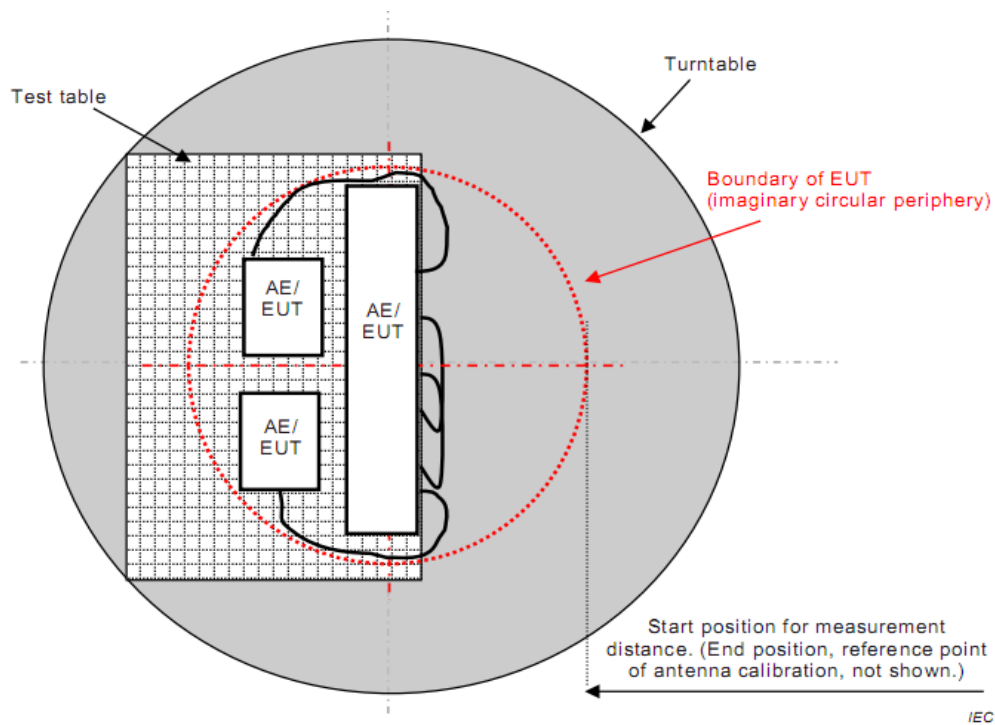


Figure 2

4.3. Test Procedure

Starting with the front of the receiver under test facing the measuring antenna, the measuring antenna is adjusted for horizontal polarization measurement and its height varied between 1 m and 4 m until the maximum reading is obtained.

The receiver under test is then rotated about its centre until the maximum meter reading is obtained, after which the measuring antenna height is again varied between 1 m and 4 m and the maximum reading noted.

The procedure is repeated for vertical polarization of the measuring antenna.

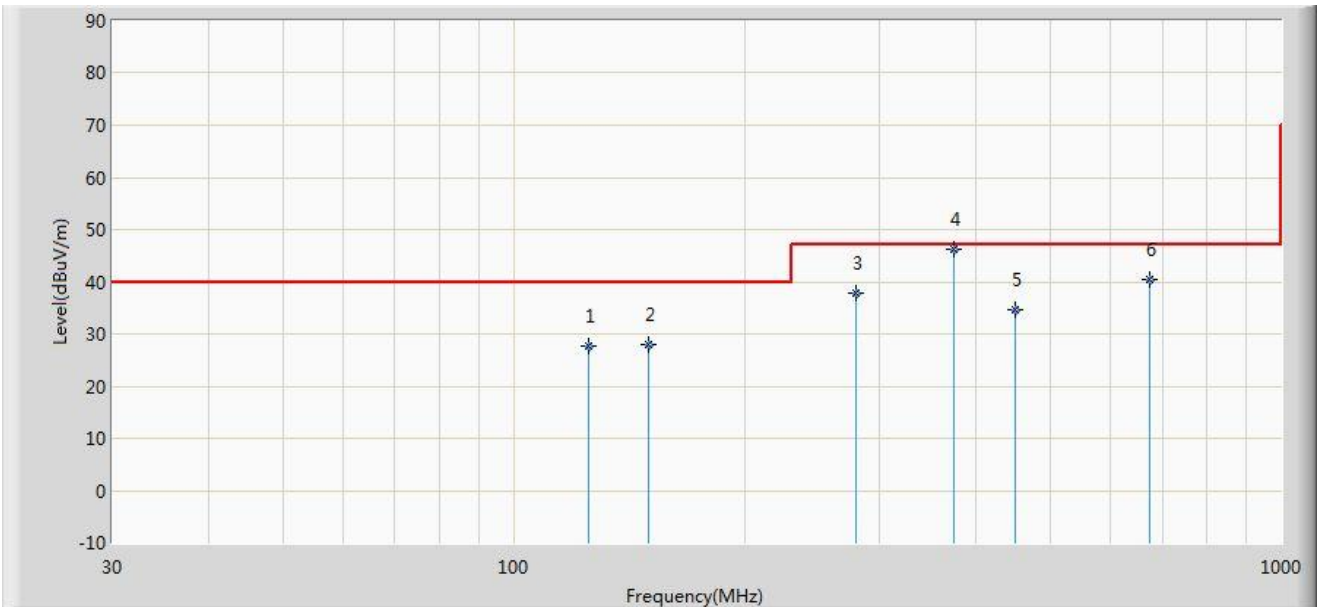
The highest value found, following this procedure, is defined as the radiation figure of the receiver.

If at certain frequencies the ambient signal field strength is high at the position of the receiving antenna, one of the following methods may be used to show compliance of the equipment under test.

- For small frequency bands with high ambient signals, the disturbance value may be interpolated from the adjacent values. The interpolated value shall lie on the curve describing a continuous function of the disturbance values adjacent to the ambient noise.
- Another possibility is to use the method described in annex C of CISPR 11.

4.4. Test Result

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 1	

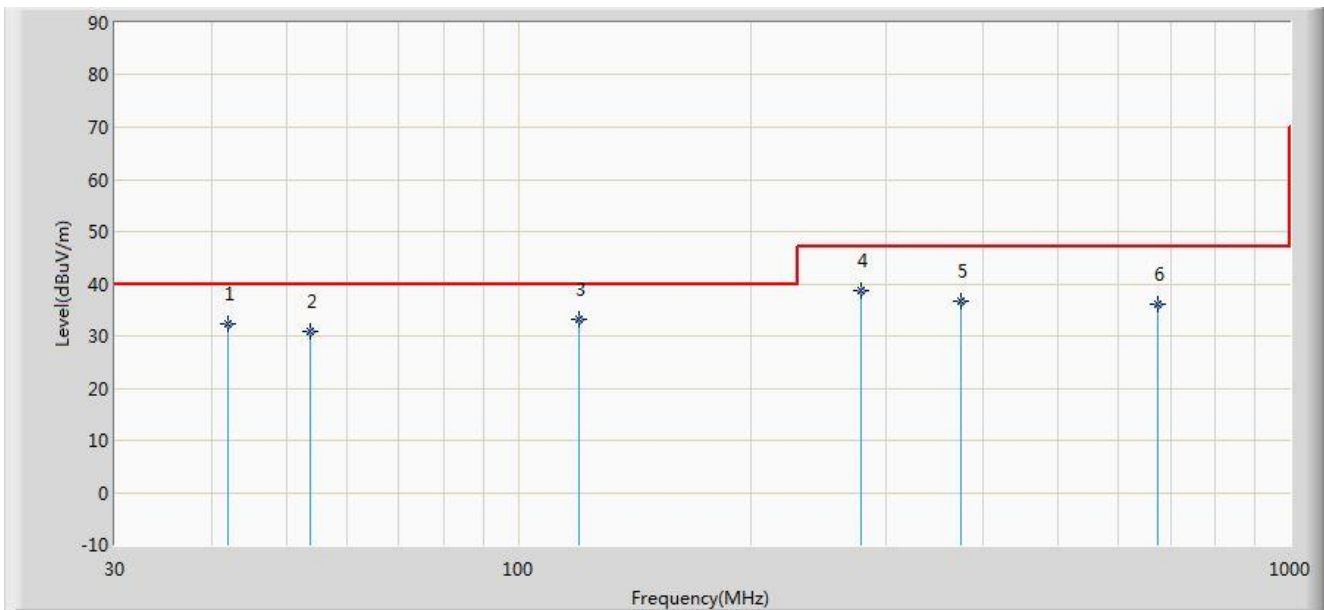


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			125.060	27.760	14.310	-12.240	40.000	13.450	QP
2			149.795	27.982	12.846	-12.018	40.000	15.136	QP
3			278.804	37.760	23.996	-9.240	47.000	13.764	QP
4		*	375.000	46.203	30.200	-0.797	47.000	16.003	QP
5			450.011	34.779	16.958	-12.221	47.000	17.821	QP
6			675.052	40.355	18.629	-6.645	47.000	21.726	QP

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 1	

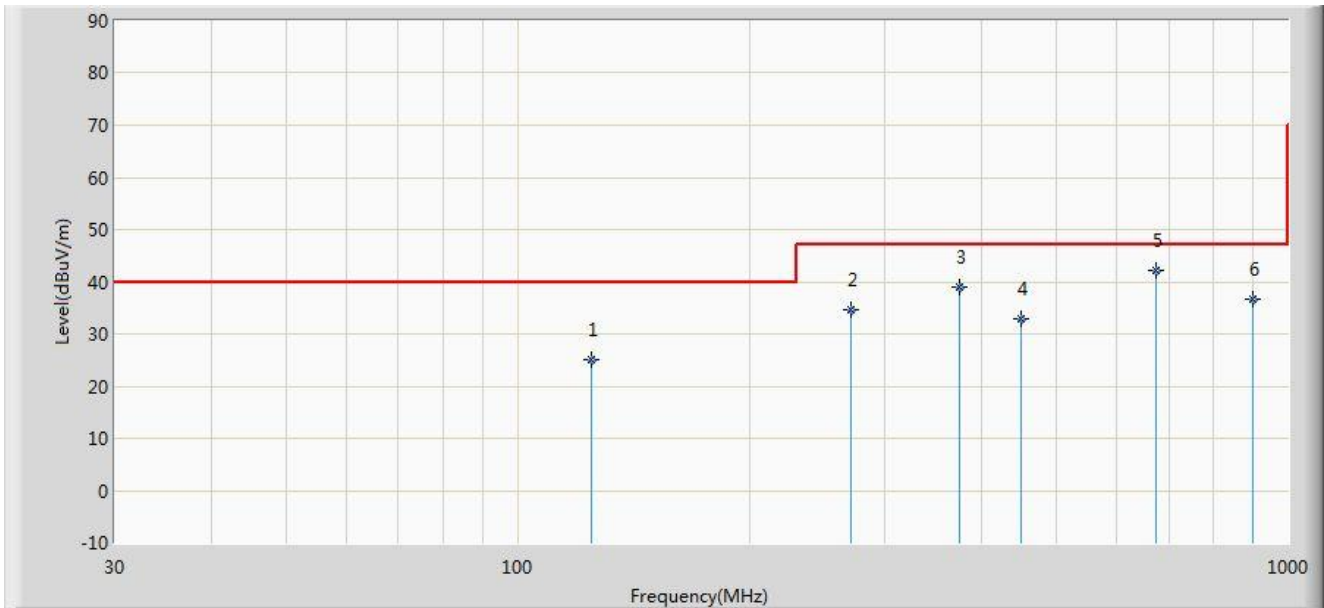


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			42.125	32.246	17.855	-7.754	40.000	14.391	QP
2		*	53.767	30.980	17.185	-9.020	40.000	13.795	QP
3			119.725	33.235	20.148	-6.765	40.000	13.087	QP
4			277.836	38.741	25.010	-8.259	47.000	13.730	QP
5			374.835	36.695	20.695	-10.305	47.000	16.000	QP
6			675.052	36.086	14.360	-10.914	47.000	21.726	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 2	

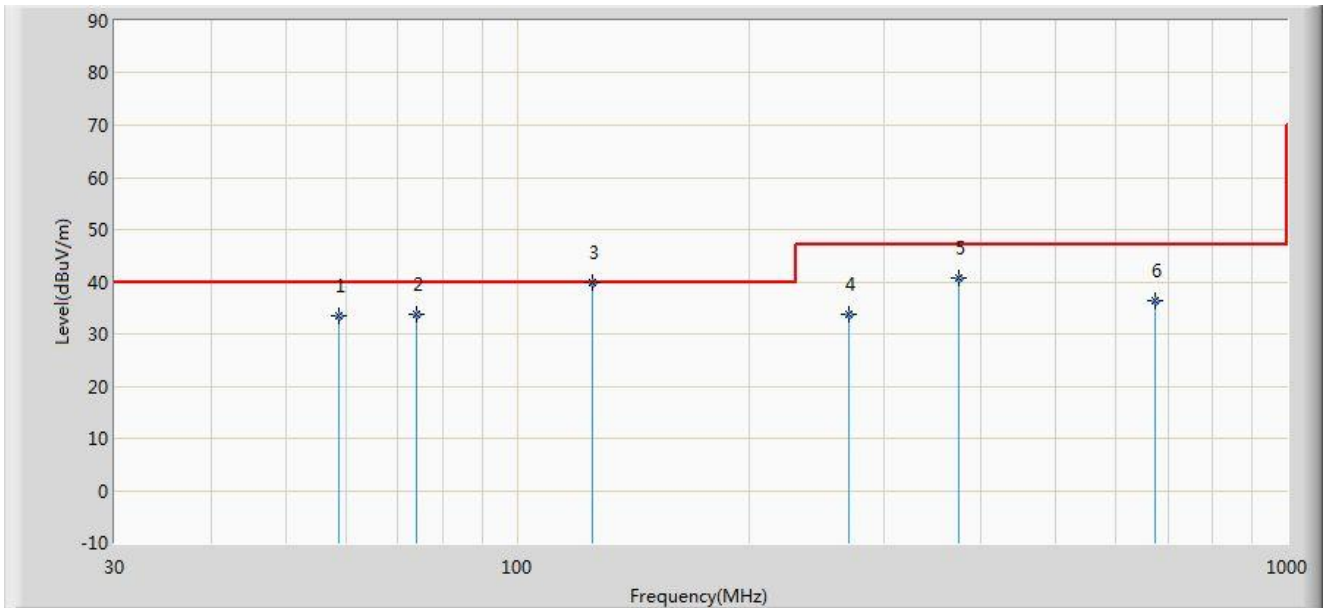


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	124.575	25.111	11.689	-14.889	40.000	13.422	QP
2			270.560	34.547	21.036	-12.453	47.000	13.511	QP
3			374.835	38.960	22.960	-8.040	47.000	16.000	QP
4			450.010	32.771	14.950	-14.229	47.000	17.821	QP
5			675.050	42.046	20.320	-4.954	47.000	21.726	QP
6			900.090	36.600	12.250	-10.400	47.000	24.350	QP

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 2	

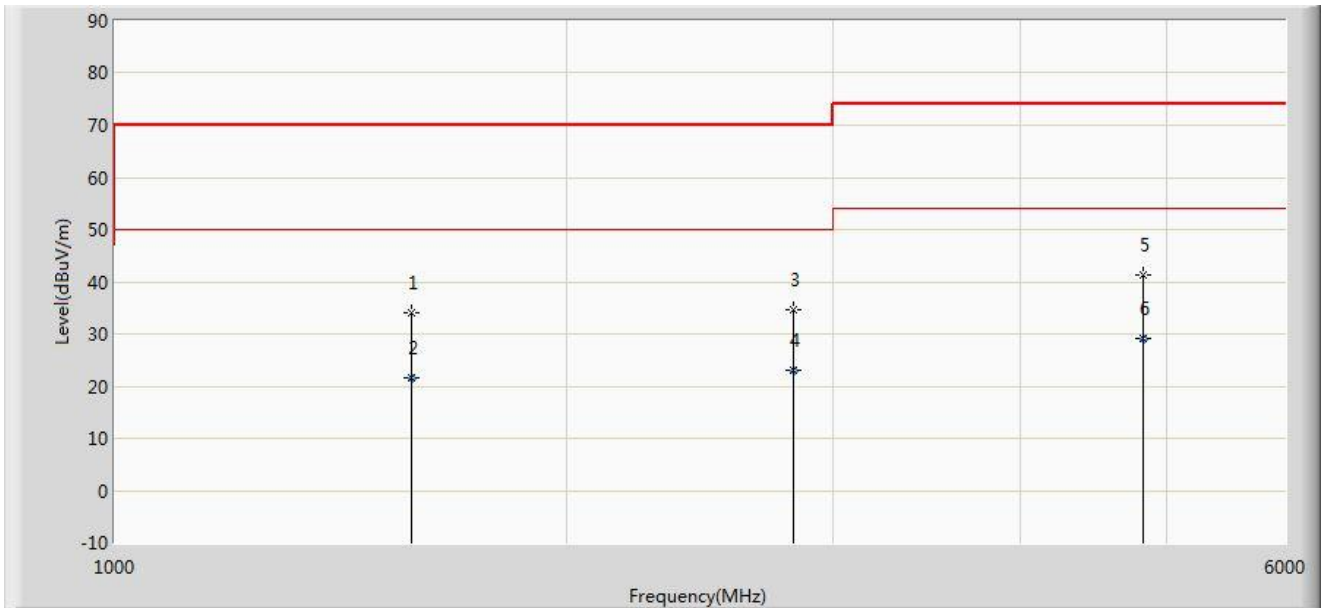


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	58.615	33.483	20.025	-6.517	40.000	13.458	QP
2			74.134	33.834	22.960	-6.166	40.000	10.874	QP
3			124.999	39.846	26.400	-0.154	40.000	13.446	QP
4			269.589	33.902	20.418	-13.098	47.000	13.484	QP
5			374.835	40.650	24.650	-6.350	47.000	16.000	QP
6			675.050	36.385	14.659	-10.615	47.000	21.726	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 1	

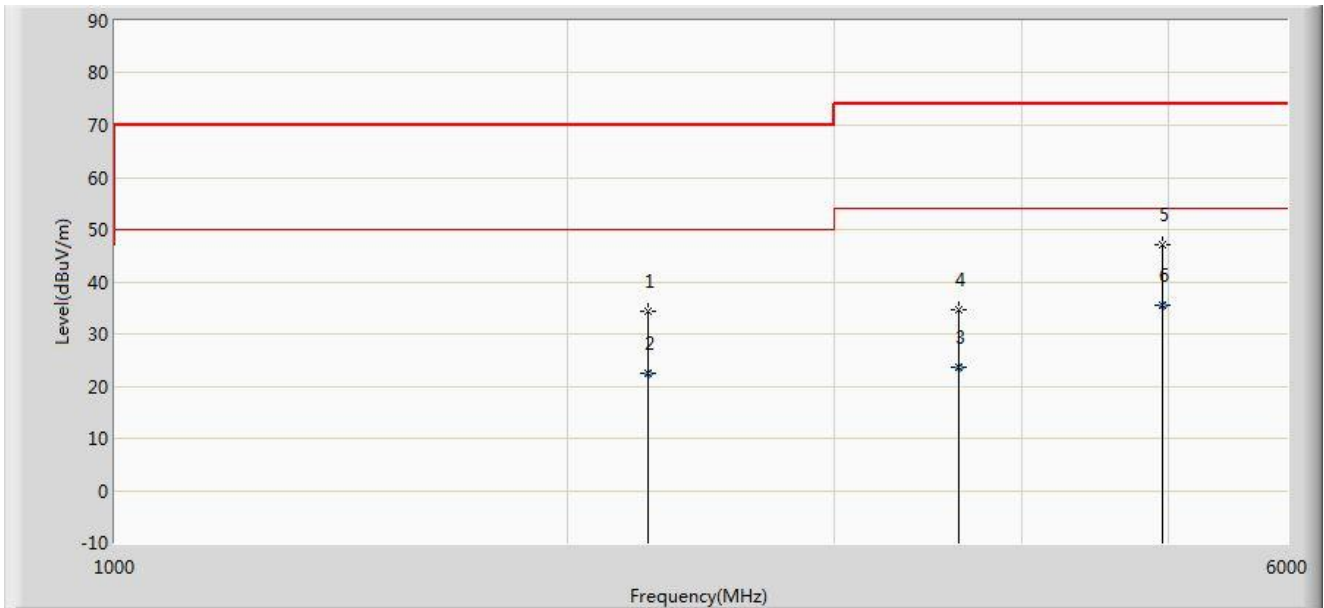


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1575.000	34.119	41.803	-35.881	70.000	-7.683	PK
2			1575.140	21.456	29.140	-28.544	50.000	-7.683	AV
3			2830.000	34.493	36.905	-35.507	70.000	-2.412	PK
4			2830.140	23.068	25.480	-26.932	50.000	-2.412	AV
5			4825.000	41.448	38.748	-32.552	74.000	2.700	PK
6		*	4825.140	29.240	26.540	-24.760	54.000	2.700	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: AC1	Time: 2017/07/07 - 03:02
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 1	

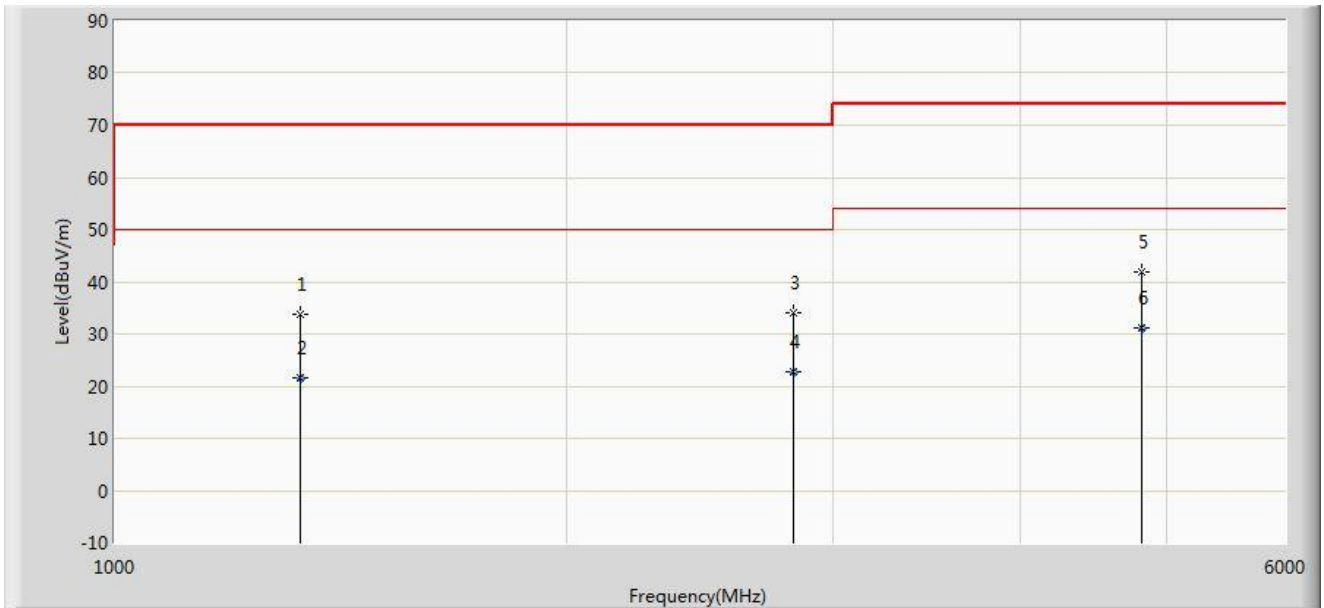


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2260.000	34.223	37.663	-35.777	70.000	-3.440	PK
2			2260.150	22.410	25.850	-27.590	50.000	-3.440	AV
3			3632.140	23.522	24.150	-30.478	54.000	-0.628	AV
4		*	3632.500	34.735	35.363	-39.265	74.000	-0.627	PK
5			4960.000	47.014	44.109	-26.986	74.000	2.905	PK
6			4960.150	35.486	32.580	-18.514	54.000	2.906	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: AC1	Time: 2017/07/07 - 03:03
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 2	

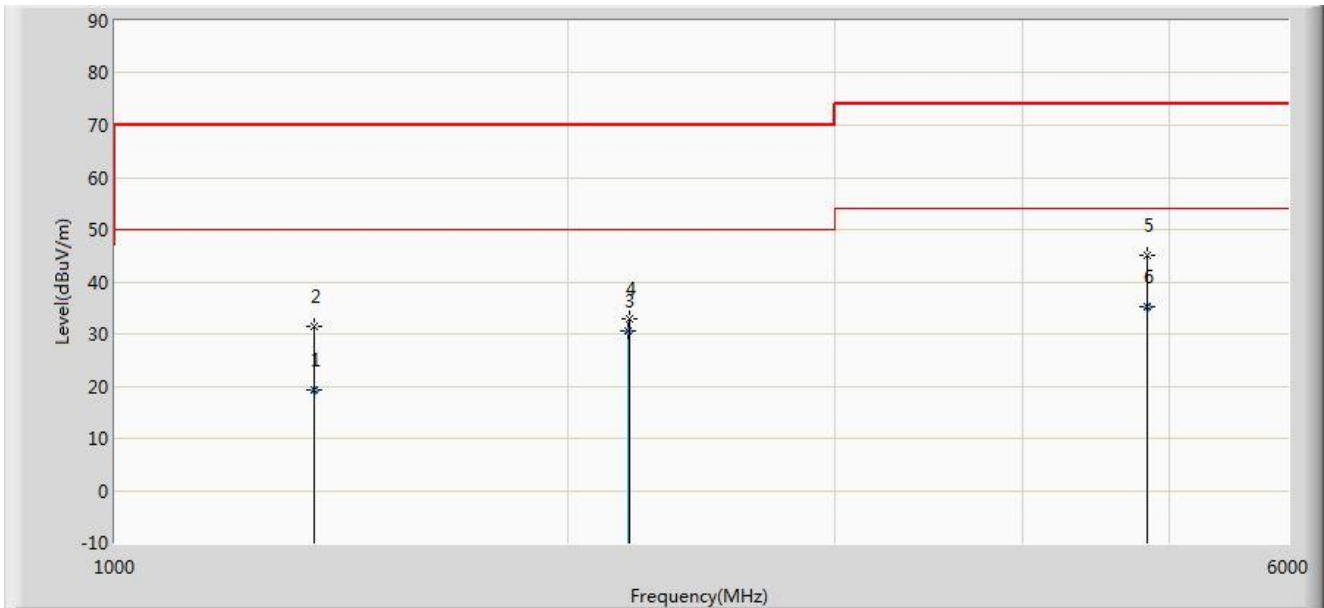


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1330.000	33.695	41.713	-36.305	70.000	-8.018	PK
2			1330.150	21.524	29.540	-28.476	50.000	-8.016	AV
3			2830.000	33.972	36.384	-36.028	70.000	-2.412	PK
4		*	2830.150	22.738	25.150	-27.262	50.000	-2.412	AV
5			4817.500	41.771	39.073	-32.229	74.000	2.697	PK
6			4817.520	31.208	28.510	-22.792	54.000	2.697	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: AC1	Time: 2017/07/07 - 03:03
Limit: EN55032_RE(3m)_Class B	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIRELESS ACCESS POINT	Power: AC 230V/50Hz
Test Mode: Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1357.140	19.168	27.050	-30.832	50.000	-7.882	AV
2		*	1357.500	31.566	39.448	-38.434	70.000	-7.881	PK
3			2192.160	30.462	34.160	-19.538	50.000	-3.698	AV
4			2192.500	32.785	36.479	-37.215	70.000	-3.695	PK
5			4835.000	45.166	42.468	-28.834	74.000	2.699	PK
6			4835.120	35.328	32.630	-18.672	54.000	2.698	AV

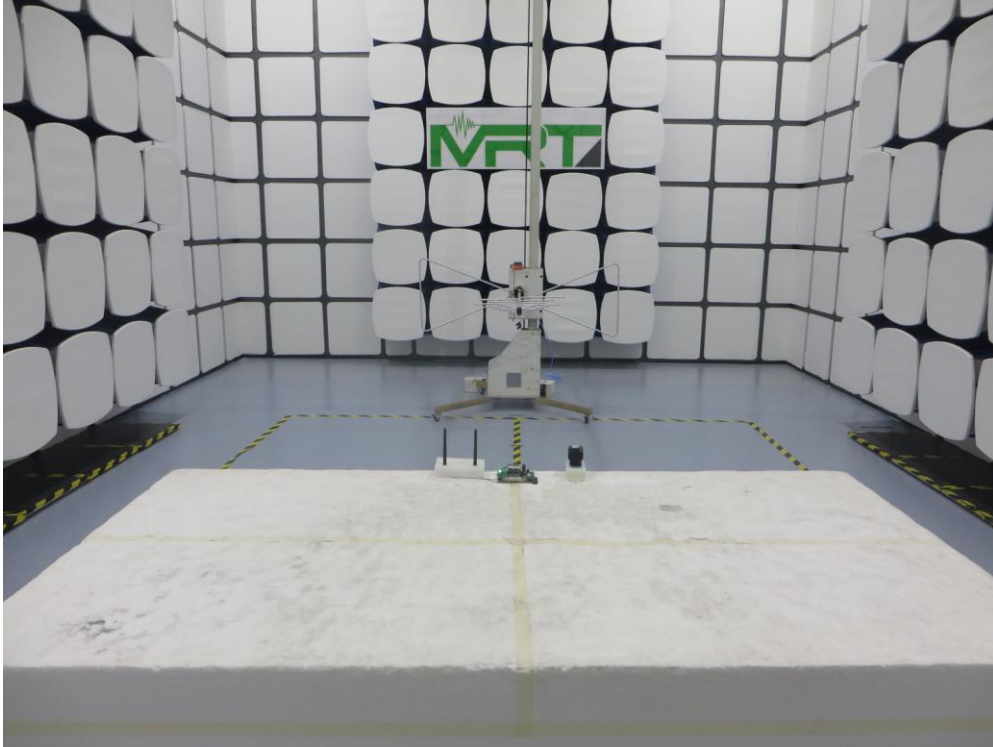
Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

4.5. Test Photograph

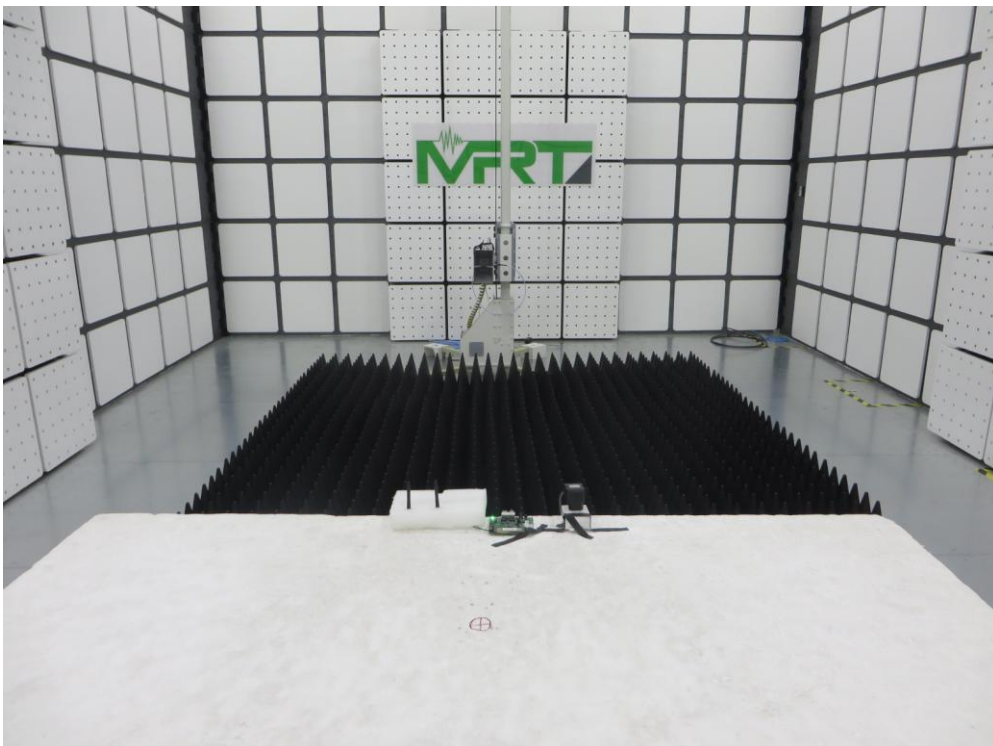
Test Mode: Mode 1

Description: Radiated Emission Test Setup (30MHz ~ 1GHz)



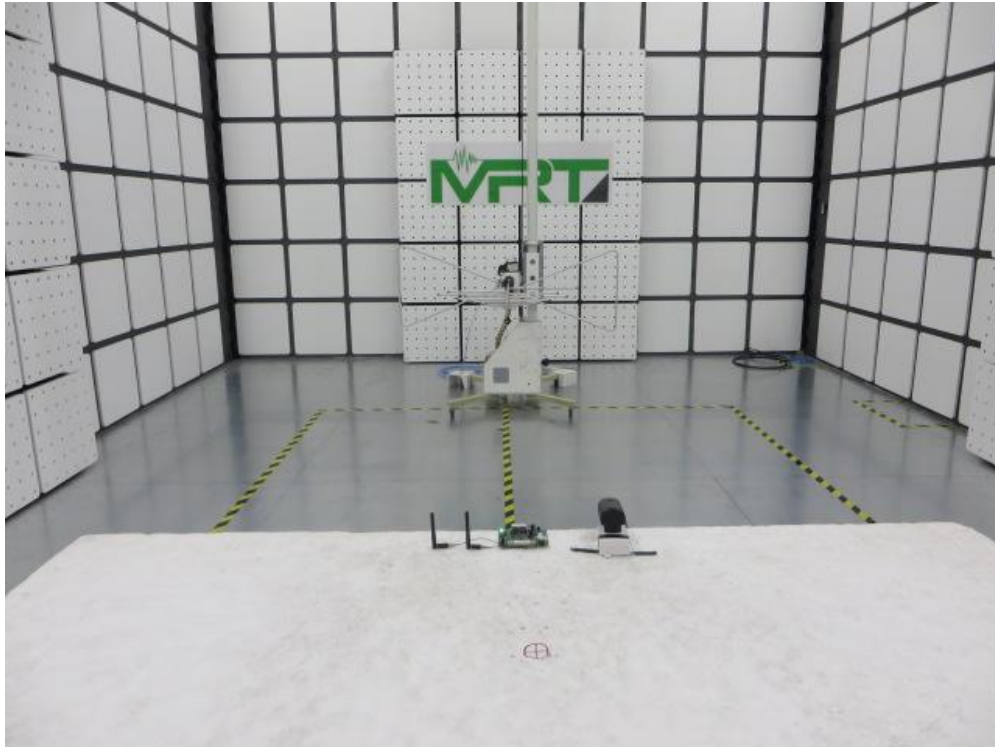
Test Mode: Mode 1

Description: Radiated Emission Test Setup (1 ~ 6GHz)



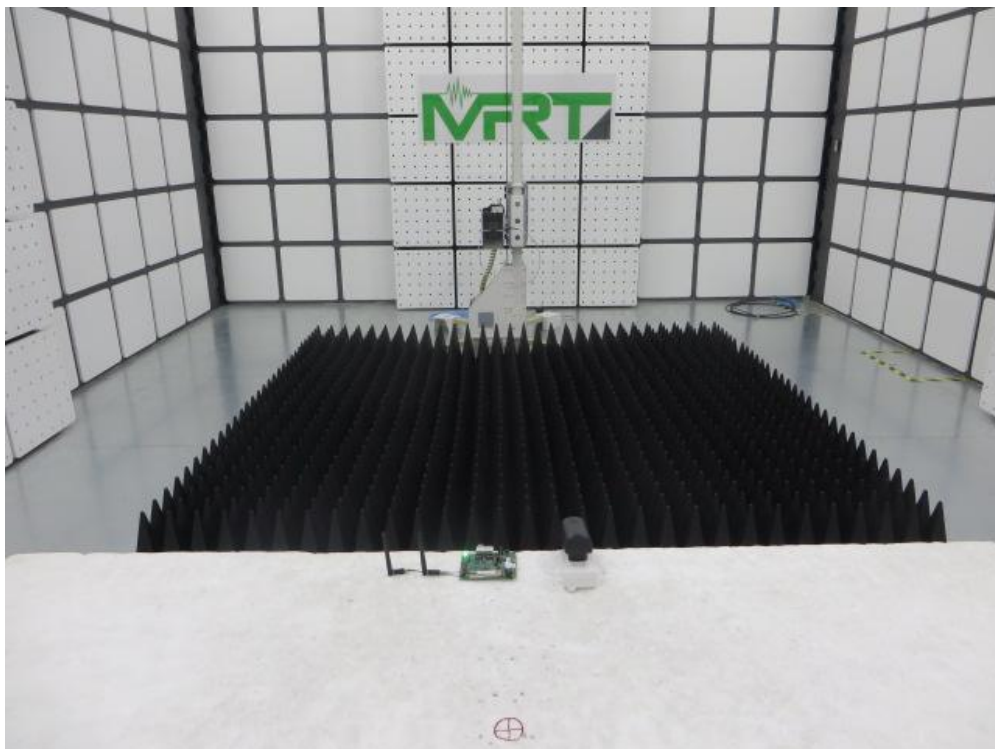
Test Mode: Mode 2

Description: Radiated Emission Test Setup (30MHz ~ 1GHz)



Test Mode: Mode 2

Description: Radiated Emission Test Setup (1 ~ 6GHz)

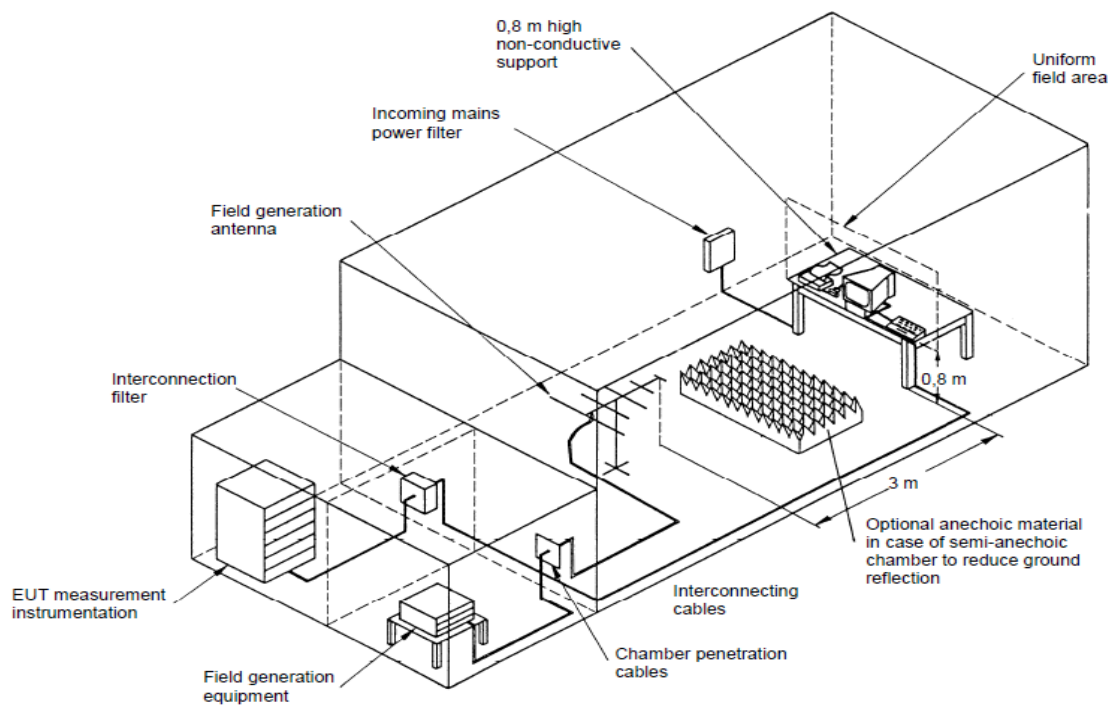


5. Radio-Frequency Electromagnetic Field

5.1. Limit of Radio-Frequency Electromagnetic Field

Environmental phenomenon	Test specification	Units	Performance criterion
Enclosure port			
Radio frequency electromagnetic field	80 - 6000	MHz	A
	3	V/m (unmodulated, r.m.s)	
	80	% AM (1kHz)	
Note 1: If the wanted signal is modulated at 1000Hz, then an audio signal of 400Hz shall be used.			
Note 2: The test shall be performed over the frequency range 80MHz to 6000MHz with the exception of the exclusion band for transmitters, receivers and duplex transceivers of EN 301 489-1, as appropriate.			

5.2. Test Setup



5.3. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters. Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3V/m
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz - 6GHz
4.	Dwell Time	3 Seconds
5.	Frequency Step Size Δf	1%

5.4. Test Result

EUT	WIRELESS ACCESS POINT	Temperature	25°C
Test Engineer	Jone Zhang	Relative Humidity	52%
Test Mode	Mode 1	Date of Test	2017/07/08

Frequency (MHz)	Polarity	Test Position	Field Strength (V/m)	Test Result
80 - 6000	Horizontal/Vertical	Front	3	Pass
		Rear		Pass
		Left		Pass
		Right		Pass
		Top		Pass
		Bottom		Pass

Note: The EUT performance complied with performance criteria for CT & CR to MS Function and there is no any degradation of performance and function, and performance criterion was A.

EUT	WIRELESS ACCESS POINT	Temperature	25°C
Test Engineer	Jone Zhang	Relative Humidity	52%
Test Mode	Mode 2	Date of Test	2017/07/08

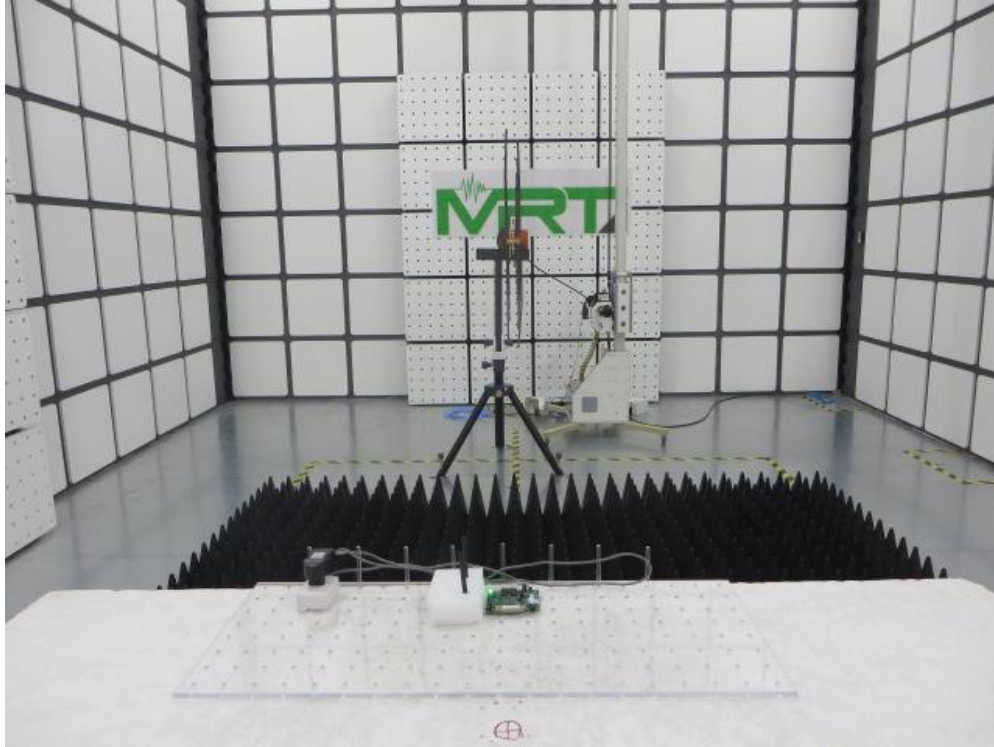
Frequency (MHz)	Polarity	Test Position	Field Strength (V/m)	Test Result
80 - 6000	Horizontal/Vertical	Front	3	Pass
		Rear		Pass
		Left		Pass
		Right		Pass
		Top		Pass
		Bottom		Pass

Note: The EUT performance complied with performance criteria for CT & CR to MS Function and there is no any degradation of performance and function, and performance criterion was A.

5.5. Test Photograph

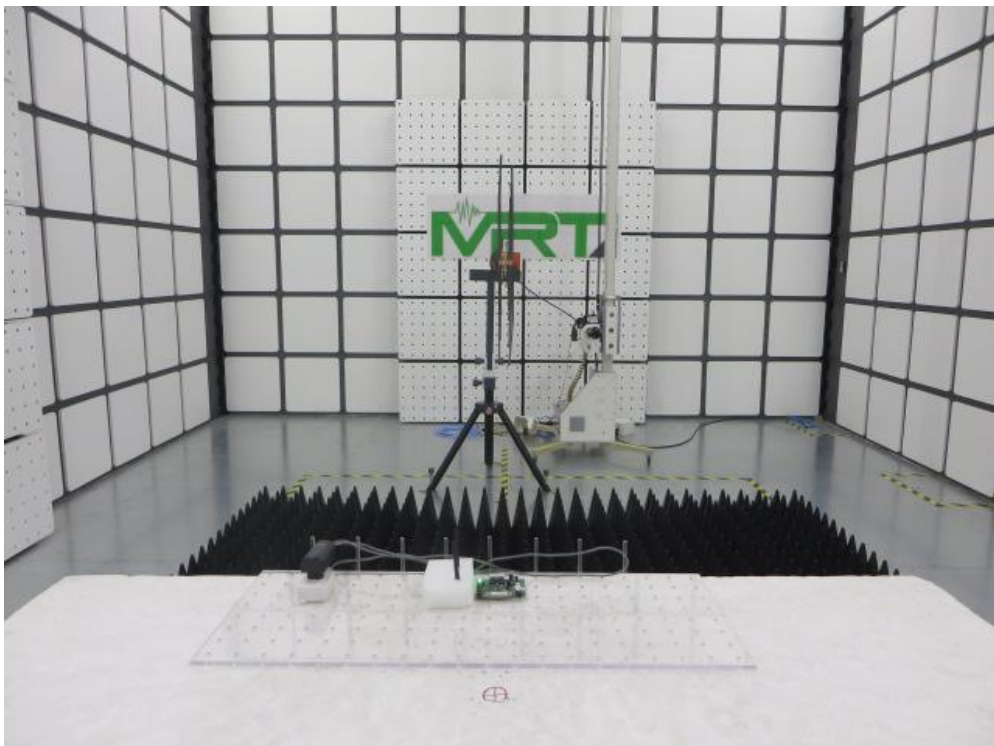
Test Mode: Mode 1

Description: Radio-frequency Electromagnetic Field Test Setup



Test Mode: Mode 2

Description: Radio-frequency Electromagnetic Field Test Setup



6. Uncertainty Measurement

Radiated Disturbance - AC1

The maximum measurement uncertainty is evaluated as:

Horizontal: 30MHz~300MHz: ± 4.07 dB

300MHz~1GHz: ± 3.63 dB

Vertical: 30MHz~300MHz: ± 4.18 dB

300MHz~1GHz: ± 3.60 dB

Radiated Disturbance - AC2

The maximum measurement uncertainty is evaluated as:

Horizontal: 1GHz~6GHz: ± 4.16 dB

Vertical: 1GHz~6GHz: ± 4.76 dB

7. List of Measuring Instrument

Radiated Disturbance - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2017/08/19
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2018/03/27
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2017/11/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2017/10/22
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06183	1 year	2017/12/22
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2018/05/10

Radiated Disturbance - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2017/08/19
Broadband Coaxial Pre-amplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2017/11/06
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2017/11/06
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2017/12/10
Digital Thermometer & Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2017/11/29
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2018/05/10

Radio-Frequency Electromagnetic Field - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Generator	Agilent	E4438C	MRTSUE06081	1 year	2017/12/06
EPM Series Power Meter	Agilent	E4418B	MRTSUE06204	1 year	2018/06/26
Power Sensor	Agilent	E9301H	MRTSUE06205	1 year	2018/06/26
Power Amplifier	AR	150W1000M1	MRTSUE06146	N/A	N/A
Power Amplifier	rflight	NTWPAS-1025100	MRTSUE06264	1 year	2018/04/12
Power Amplifier	rflight	NTWPAS-2560100	MRTSUE06263	1 year	2018/04/12
High-Gain Horn Antenna	AR	ATH800M5GA	MRTSUE06144	N/A	N/A
Log-Periodic Antenna	AR	ATR80M6G	MRTSUE06145	N/A	N/A
Digital Thermometer & Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2017/11/29
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2018/05/10

Software	Version	Function
e3	v 8.3.5	EMI Test Software
JS32-RS	v 1.0.0.1	RS Test Software

_____ The End _____