RF - TEST REPORT

Report Number	:	**64.972.23.30372.01-R2**	Date of Issue:	2023-04-117
Model / Serial No.	:	HMS-600W, HMS-600W-C, HMS-800W, HMS-800W-C		
Product Type	:	Converter (Micro inverter)		
Applicant		Suzhou Hypontech Co., Ltd.		
Manufacturer		Suzhou Hypontech Co., Ltd.		
Address	:	No.1508 Xiangjiang Road, SND, 215010 Suzhou PEOPLE'S REPUBLIC OF CHINA		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	**29**		

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Table of Content

1 Report Version 3

2 General Information 4
2.1 Notes 4
2.2 Testing Laboratory 5
2.3 Application Details 5
2.4 Applied Standard 6
2.5 Test Summary 6

3 Equipment Specification 7
3.1 General Description 7
3.2 EUT Identity 7
3.3 Product Description –manufacturer description 8
3.4 Operating Frequency Range, Modulation and Throughput 9
3.5 Additional information 10
3.6 Worst case operational mode as declared by supplier 10

4 General Test Conditions / Configurations 11
4.1 Test Sample 11
4.2 Test Modes 11
4.3 Frequencies under Test 11
4.4 Test Setups 11
4.5 Test Conditions 14

5 Test Results 15

6 Test Requirements 16
6.1 RF output power 16
6.2 Maximum EIRP Spectral Density 16
6.3 Adaptivity 16
6.4 Occupied Channel Bandwidth 16
6.5 Transmitter unwanted emissions in the out-of-band domain 17
6.6 Transmitter Spurious Emissions 17
6.7 Receiver Spurious Emissions 18
6.8 Receiver Blocking 18

7 Main Test Instruments 20

8 System Measurement Uncertainty 21

9 Appendix A: Transmitter Spurious Emissions – Operating Mode 22

10 Appendix B: Receiver Spurious Emissions 24

11 Appendix I: Estimation of Exposure of Human to Electromagnetic Fields 26

12 Appendix J: Test Setup Photos 28

13 Appendix K: EUT Photos 29

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1 Report Version

Revision	Release Date	History/Memo.
1.0	2023-04-17	Initial Release

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2 General Information

2.1 Notes

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Prepared By	**2023-04-17**	**Charlie Wu**	Charlie Wu
	Date	**Name**	**Signature**
Approved by	**2023-04-17**	**Wendy Ye**	Wendy Ye
	Date	**Name**	**Signature**

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2.2 Testing Laboratory

Test Laboratory:

Jiangsu Product Quality Testing&Inspection Institute
Address: No.1368,Wuzhongdadao Avenue,Suzhou,China

2.3 Application Details

Date of receipt of test item:	**2023-03-09**
Date of test:	**2023-03-09 to 2023-03-09**

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2.4 Applied Standard

Test Standards	
EN 300 328 V2.2.2 (2019-07)	**Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum**
EN 62311:2008	**Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)**
EN 50665:2017	**Generic standard for assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0Hz to 300 GHz)**

2.5 Test Summary

Table1. Summary of results

Conformance requirement according to ETSI EN 300 328 V2.2.2 (2019-07)		**Result**
Essential parameter	**Corresponding technical requirements**	
Transmitter requirements	4.3.2.2 RF output power	N/P
	4.3.2.3 Power Spectral Density	N/P
	4.3.2.4 Duty Cycle, Tx-sequence, Tx-gap *	N/A
	4.3.2.5 Medium Utilisation (MU) factor *	N/A
	4.3.2.6 Adaptivity **	N/P
	4.3.2.7 Occupied Channel Bandwidth	N/P
	4.3.2.8 Transmitter unwanted emissions in the out-of-band domain	N/P
	4.3.2.9 Transmitter unwanted emissions in the spurious domain	PASS
Receiver requirements	4.3.2.10 Receiver spurious emissions	PASS
	4.3.2.11 Receiver Blocking	N/P
	4.3.2.12 Geo-location capability	N/A
Remark		

Note1: NA = Not Applicable; NP = Not Performed

Note2: Measurement taken is within the measurement uncertainty of measurement system.

Note3: "*"This requirement does not apply to adaptive equipment unless operating in a non-adaptive mode.

Note4: "**"These requirements do not apply for equipment with a maximum declared RF Output power of less than 10 dBm e.i.r.p.

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3 Equipment Specification

3.1 General Description

All models are using the same WIFI module, and the RF module had been approved in report No. RSHA220223001-01A. This time we selected HMS-800W for spurious emission below 1GHz tests only. Other Bluetooth test data can refer to report RSHA220223001-01A.

Model list

Model name		HMS-800W HMS-800W-C	HMS-600W HMS-600W-C
PV Input	Max. input voltage	d.c. 60V	d.c. 60V
	MPP voltage range	d.c. 25-55V	d.c. 25-55V
	Max. input current	d.c. 15/15A	d.c. 15/15A
	Isc PV(absolute maximum)	d.c. 20/20A	d.c. 20/20A
Grid Output	Rated output voltage	1/N/PE AC 220/230/240V	1/N/PE AC 220/230/240V
	Rated output frequency	50/60Hz	50/60Hz
	Max. AC output current	a.c 3.6A	a.c 2.7A
	Rated AC output power	800W	600W
	Rated/Max. apparent AC power	800VA	600VA
	Power factor	>0.99	>0.99
General	Overvoltage category	III(AC), II(DC)	III(AC), II(DC)
	Ingress protection	IP67	IP67
	Protective class	I	I
	Operating temperature range	-40ºC to 65ºC	-40ºC to 65ºC
	Inverter topology	Isolated	Isolated

All models have the same electronic components except amount of AC output port and output power/current by software control.
Models HMS-800W, HMS-600W have two output ports and models HMS-800W-C, HMS-600W-C only have one output port.

3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.2.1 Technical data

Description:	Converter (Micro inverter)
Test Models:	HMS-800W
Input Rated Voltage	DC 60V

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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3.3 Product Description –manufacturer description

3.3.1 Type of Tested Equipment

☐ Bluetooth	☒ IEEE 802.11	Other supply full details:_____	
☐ Stand-alone	☐ Plug-in radio	☒ Combined equipment	☐ Other

3.3.2 Extreme operating condition as declared by manufacturer

Power source description			
☐ **AC mains voltage**		☒ **DC voltage Nominal**	
Type of DC			
☐ Internal Power Supply	☐ External AC/DC Adapter	☐ Battery	☐ Other:PV port

EXTREME TEMPERATURE RANGE [manufacturer declared]			
Environment class /Operating Temperature	**TL = Minimum Temperature [°C]**	**TN = Normal Temperature [°C]**	**TH = Maximum Temperature [°C]**
☒ **Outdoor and indoor usage**	-40	25	65
☐ **Indoor usage only**	-40	25	60
☐ **Other [declared by manufacturer in UM]**	0		50

3.3.3 Type of adaptivity used

☐ **Non-adaptive**	☒ **Adaptive**	☐ **LBT**	☐ **Non LBT**
	☐ **The system can operate in more than one adaptive mode**	☐ **System can operate both adaptive & non adaptive mode**	
	☐ **Frame Based Equipment**	☒ **Load Based Equipment**	
		CCA time implemented [uS]	>20
		q as referred by 4.3.2.5.2.2.2	4-32

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3.3.4 Antenna Assembles Profiles

Antenna Type	☐ **Integrated**	☒ **External**	
Temporary RF connector	☐ **Provided**	☒ **Not- provided**	
☒ **SISO - Single antenna equipment**		**Antenna gain [dBi] =**	**+2.33**
☐ **MIMO - Multiple antenna without bean forming**		**Number of transmit antennas=**	**1**
☐ **MIMO/B - Multiple antenna with bean forming**		**Bean forming gain [dB] Y =**	**….**
Number of receive chains	**1**	☐ **Symmetrical power distribution**	
Number of transceive chains	**1**	☐ **Asymmetrical power distribution**	
☐ **Tx power control (TPC) (antenna connectorwith multiple power setting)**		**Nr. of different power level**	**…..**

3.4 Operating Frequency Range, Modulation and Throughput

Transmitter / Receiver Frequency Range (Tx/Rx)				
☒ **Range 1 : from : 2412 MHz To 2472 MHz**				
WLAN				
IEEE 802.11 WLAN Mode Supported	☒ **IEEE 802.11 b**	☒ **IEEE 802.11g**	☒ **HT20 802.11n**	☒ **HT40 802.11n**
Modulation type	**CCK DSSS**	**OFDM**	**OFDM**	**OFDM**
Channel Bandwidth [MHz]	**20**	**20**	**20**	**40**
Data Rate / Spatial Stream	**Single stream**		**Up to 4 spatial stream**	
IEEE 802.11 b	**1, 2, 5.5, 11 Mbps**			
IEEE 802.11g	**6, 9, 12, 18, 24, 36, 48, 54 Mbps**			
HT20 802.11n	**MCS0 to MCS7 (0-7=> 6.5 – 72 Mbps)**			
HT40 802.11n	**MCS0 to MCS7 (0-7=> 13.5 – 150 Mbps)**			

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3.5 Additional information

The transmitter can operate only:

☒ **Modulated**

☐ **Un-modulated**

ITU Class of emissions 1. 22

Duty Cycle: The transmitter is intended for

☐ **Continuous duty**

☐ **Intermittent duty, duty**

☒ **Continuous operation possible for testing purposes**

About the EUT:

☒ **The equipment submitted is representative production models.**

☐ **If not, the equipment submitted is pre-production models.**

☐ **If preproduction equipment is submitted, the final production equipment will be identical in all respects with the equipment tested.**

☐ **If not, supply full details:**_____

3.6 Worst case operational mode as declared by supplier

Test	Operating mode
RF Output Power	N/A
Power spectral density	N/A
Duty cycle,Tx – Sequence, TX gap	N/A
Medium Utilisation	N/A
Adaptivity	N/A
Ocuppied Channel Bandwidth	N/A
Transmiter unwantd emision in OOB domanin	N/A
Transmiter unwantd emision in spurious domanin	Continuous transmitting
Receiver spurious domanin	Normal operating
Receiver Blocking	N/A

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4 General Test Conditions / Configurations

4.1 Test Sample

☒ The report applies to single model of HMS-800W.

☐ The report applies to several models. The practical measurements are performed using the model.

4.2 Test Modes

NOTE: Typical working modes for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
Normal	Normal operating
CT	Continuous transmitting
CR	Continuous receiving

4.3 Frequencies under Test

Test Mode	RF Channel		
	Lowest/Bottom (B)	Middle (M)	Highest/Top (T)
11B, 11G, 11N HT20	Ch No. 1 / 2412 MHz	Ch No. 7 / 2442 MHz	Ch No. 13 / 2472 MHz
11N HT40	Ch No. 3 / 2422 MHz	Ch No. 7 / 2442 MHz	Ch No. 13 / 2462 MHz

4.4 Test Setups

NOTE: See Appendix H for practical Test Setup Photos.

4.4.1 General Test Setup Configurations

Configuration	Description
Test Antenna Ports	**Until declared, all Transmitter tests are performed at all antenna ports of the EUT; all Receiver tests are performed at all antenna ports.**
Multiple RF Sources	**Other non-WLAN RF source(s) (if applicable) of the EUT are disabled or shutdown during measurements for WLAN RF source, which is considered in the present report.**

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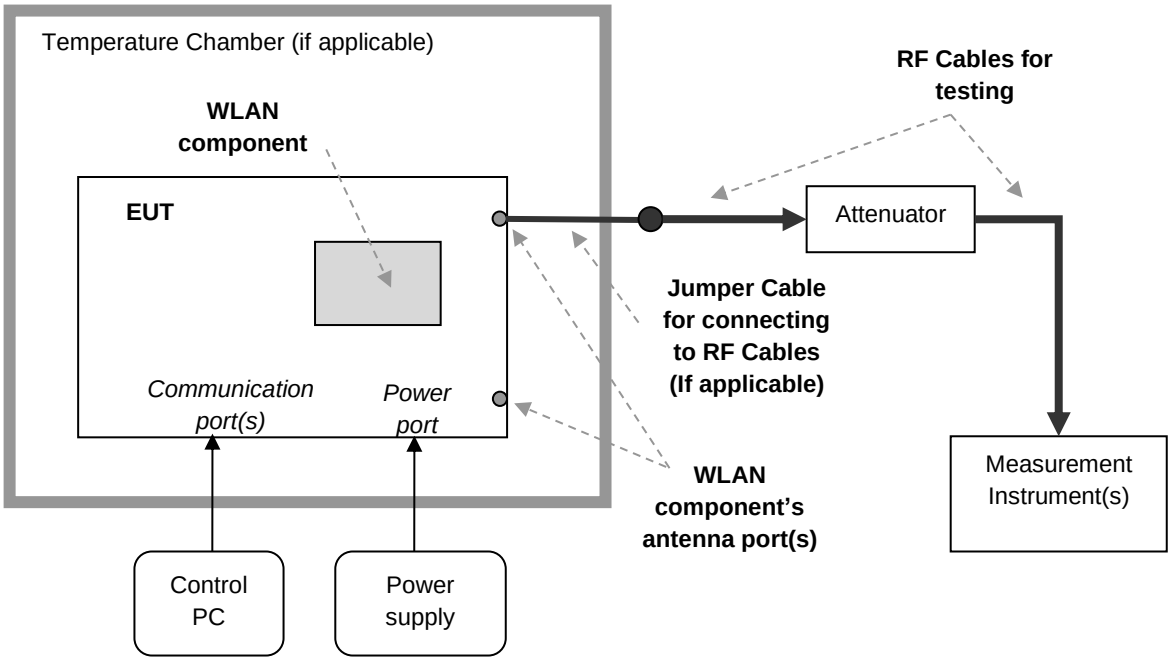
4.4.2 Test Setup for Conducted Measurements

The EUT (WLAN unit) is placed in a Temperature Chamber (if applicable), and is powered by a Power Supplier. An external Control PC associated with special software(s) is used to configure the EUT (WLAN unit) with the purpose of fulfilling the test requirements by EN standard.

The antenna port(s) of the EUT (WLAN unit) are connected to the Measurement Instrument(s) through an appropriate Attenuator. For the antenna port(s) which are not tested, appropriate 50 Ohm terminations are used.

In addition, different setting options (e.g. Option 1) for Measurement Instrument(s) for conducted measurement methods can be used for some test items according to the EN standard. The selected option is specified in test conditions for each test case.



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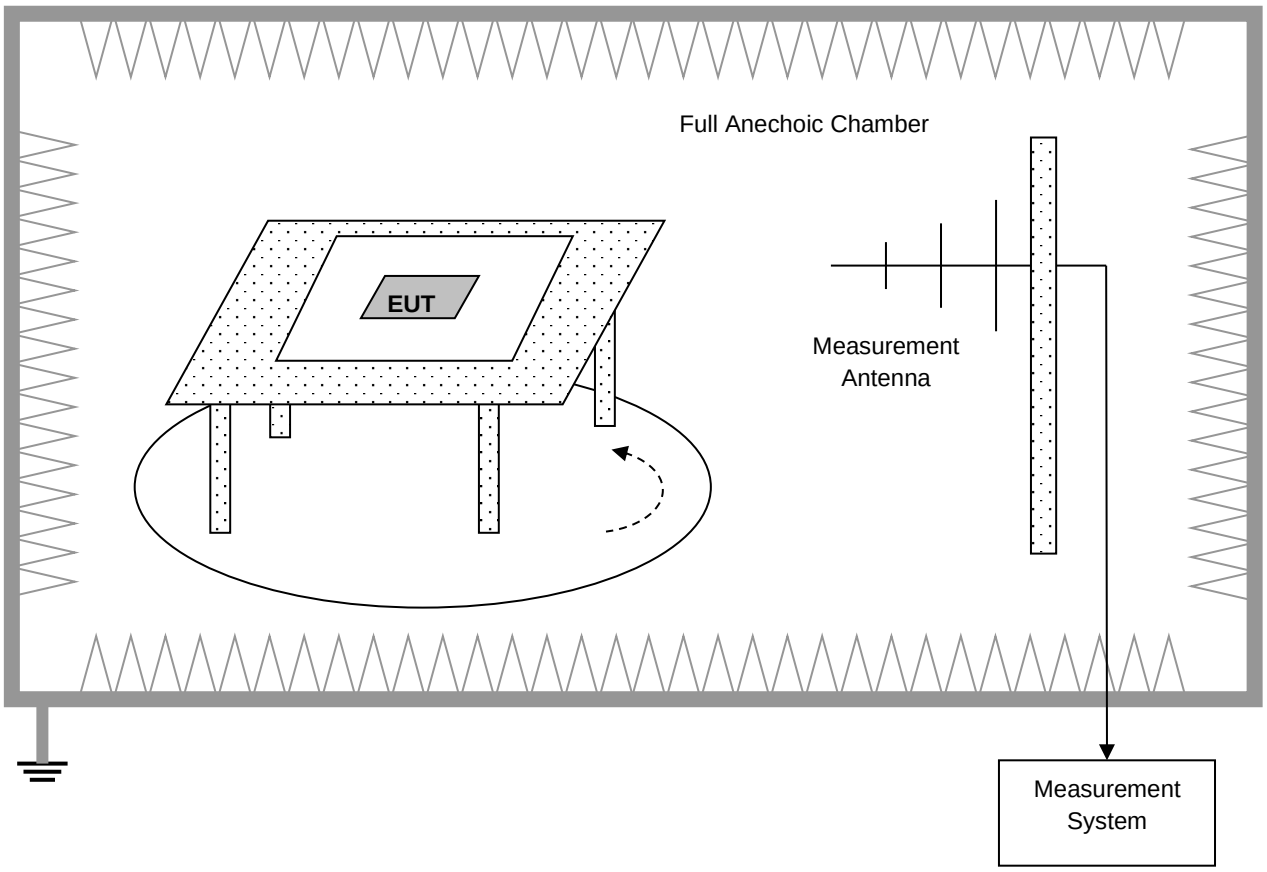
4.4.3 Test Setup for Radiated Measurements

The EUT (WLAN unit) is placed in a Fully Anechoic Chamber simulating the free-space conditions. The whole device is positioned on a non-conducting support and is powered by a Power Supplier. An external Control PC associated with special software(s) is used to configure the EUT (WLAN unit) with the purpose of fulfilling the test requirements by EN standards.

An appropriate Measurement Antenna (according to different test frequency ranges) with the distance of 3 m to the whole device is used to obtain maximum response from the whole device, which is rotated when measurement running. The measurement is performed with the Measurement Antenna in both horizontal and vertical polarization planes.



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4.5 Test Conditions

Test Case	Test Conditions	
	Configuration	**Description**
	Test Frequency	L, H
Transmitter unwanted emissions in the spurious domain	**Measurement Method**	Radiated
	Test Conditions	NTNV
	Smart Antenna Systems	Ant 1
	Test Modes	CT
	Transmitter Mode	Operating
	Test Frequency	L, H
Receiver Spurious Emissions	**Measurement Method**	Radiated
	Test Conditions	NTNV
	Smart Antenna Systems	Ant 1
	Test Modes	Normal
	Receiver Mode	Continues Receiving
	Test Frequency	L, H

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5 Test Results

No.	Test Item	Test Result
1	4.3.2.1 RF output power	N/A
2	4.3.2.2 Power Spectral Density	N/A
3	4.3.2.3 Duty Cycle, Tx-sequence, Tx-gap	N/A
4	4.3.2.4 Medium Utilisation (MU) factor	N/A
5	4.3.2.5 Adaptivity	N/A
6	4.3.2.6 Occupied Channel Bandwidth	N/A
7	4.3.2.7 Transmitter unwanted emissions in the out-of-band domain	N/A
8	4.3.2.8 Transmitter unwanted emissions in the spurious domain	Appendix A
9	4.3.2.9 Receiver spurious emissions	Appendix B
10	4.3.2.11 Receiver Blocking	N/A

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6 Test Requirements

6.1 RF output power

The equivalent isotropic radiated power (as EIRP) shall be equal to or less than 100 Mw (≤ 20 dBm). This limit shall apply for any combination of power level and intended antenna assembly.

6.2 Maximum EIRP Spectral Density

For wide band modulations other than FHSS (e.g. DSSS, OFDM, etc.), the maximum e.i.r.p. spectral density (as PD) is limited to 10 Mw per MHz (= 10 dBm/MHz).

6.3 Adaptivity

Adaptivity:

The equipment used Non-LBT based Detect and Avoid mechanism shall comply with the requirements defined in clause 4.3.2.5.1.2.

LBT based Detect and Avoid mechanism: This mechanism defines 2 types of adaptive equipment using wide band modulations and that uses an LBT based Detect and Avoid mechanism: Frame Based Equipment and Load Based Equipment. The kind of the equipment shall comply with the requirements defined in clause 4.3.2.5.2.2.

Short Control Signalling Transmissions: The transmissions used by adaptive equipment to send control signals (e.g. ACK/NACK signals, etc.) without sensing the operating channel for the presence of other signals. Adaptive equipment may or may not have Short Control Signalling Transmissions. If implemented, the limit of Short Control Signalling Transmissions of adaptive equipment using wide band modulations shall have a maximum duty cycle of 10 % within an observation period of 50 ms.

6.4 Occupied Channel Bandwidth

The Occupied Channel Bandwidth shall fall completely within the band given in clause 1.

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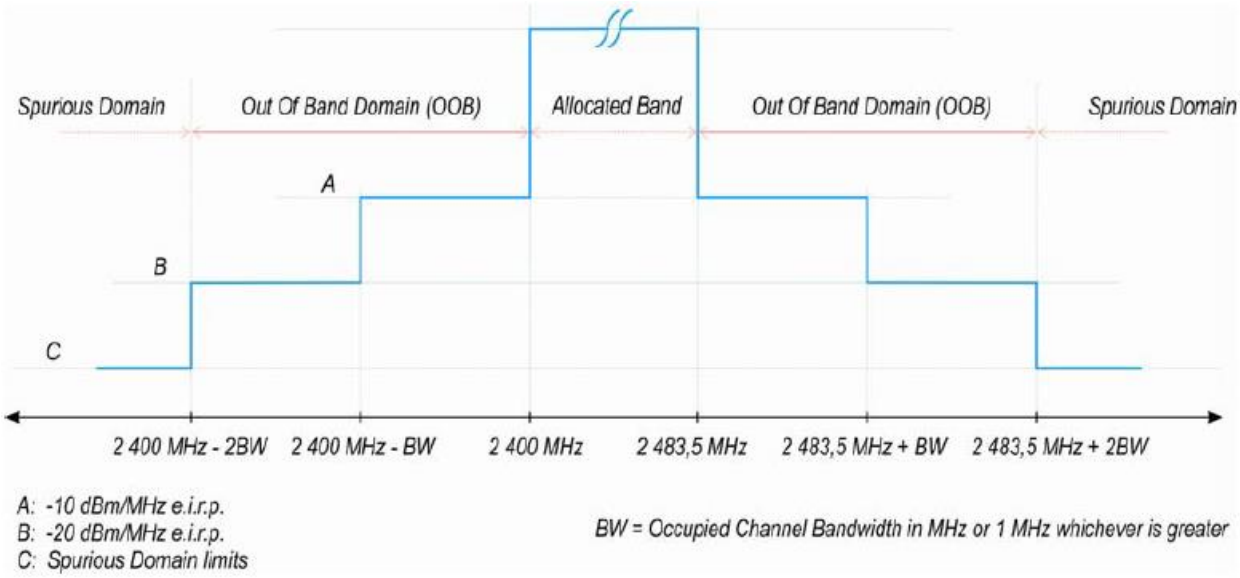
6.5 Transmitter unwanted emissions in the out-of-band domain

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in below figure.



NOTE: Within the 2 400 MHz to 2 483,5 MHz band, the Out-of-band emissions are fulfilled by compliance with the Occupied Channel Bandwidth requirement in clause 4.3.2.6.

6.6 Transmitter Spurious Emissions

The spurious emissions of the transmitter shall not exceed the values in following tables in the indicated bands.

Frequency Range	Limit When Operating	Limit When in Standby
30MHz to 47MHz	-36dBm	-57 dBm
47MHz-74MHz	-54dBm	-57 dBm
74MHz-87.5MHz	-36dBm	-57 dBm
87.5MHZ-118MHz	-54dBm	-57 dBm
118MHz-174MHz	-36dBm	-57 dBm
174MHz-230MHz	-54dBm	-57 dBm
230MHz-470MHz	-36dBm	-57 dBm
470MHz-694MHz	-54dBm	-57 dBm
694MHz-1GHz	-36dBm	-57 dBm
Above 1GHz to 12.75GHz	-30dBm	-47 dBm

NOTE: The above limit values apply to narrowband emissions, e.g. as caused by local oscillator leakage. The measurement bandwidth for such emissions may be as small as necessary to achieve a reliable measurement result.

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6.7 Receiver Spurious Emissions

The spurious emissions of the receiver shall not exceed the values in following tables in the indicated bands.

Frequency Range	Limit
30 MHz to 1 GHz	-57 dBm
1 GHz to 12.75 GHz	-47 dBm

Note: The above limit values apply to narrowband emissions, e.g. as caused by local oscillator leakage. The measurement bandwidth for such emissions may be as small as necessary to achieve a reliable measurement result.

6.8 Receiver Blocking

Adaptive equipment using wide band modulations other than FHSS, shall comply with the requirements defined in clauses 4.3.2.11.4 in the presence of a blocking signal with characteristics as provided:

Table 14: Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
(-133 dBm + 10 × $\log_{10}$(OCBW)) or -68 dBm whichever is less (see note 2)	2 380 2 504	-34	CW
(-139 dBm + 10 × $\log_{10}$(OCBW)) or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

NOTE 1: OCBW is in Hz.
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.
NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 20 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.
NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

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Table 15: Receiver Blocking parameters receiver Category 2 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × $\log_{10}$(OCBW) + 10 dB) or (-74 dBm + 10 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

Table 16: Receiver Blocking parameters receiver Category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × $\log_{10}$(OCBW) + 20 dB) or (-74 dBm + 20 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
NOTE 1: OCBW is in Hz. NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 30 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.			

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5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478

7 Main Test Instruments

Conducted RF tests – C

- RF output power
- Power Spectral Density
- Duty Cycle, Tx-sequence, Tx-gap
- Medium Utilization
- Adaptivity &Receiver Blocking
- Occupied Channel Bandwidth
- Transmitter unwanted emissions OOB

Radiated RF tests - RE

- Radiated unwanted emissions spurious TX
- Radiated unwanted emissions spurious RX

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8 System Measurement Uncertainty

System Measurement Uncertainty		
Test Items		Extended Uncertainty
1	Uncertainty for Radiated Spurious Emission 25MHz-3000MHz	Horizontal: 4.81dB; Vertical: 4.89dB;

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9 Appendix A: Transmitter Spurious Emissions – Operating Mode

NOTE 1: The whole testing range is from “30 MHz to 12.75 GHz” is divided into 2 parts according to the test site settings, which are:
- Part 1: Test range of “30 MHz to 1GHz”,
- Part 2: Test range of “1 GHz to 12.75 GHz”.

NOTE 2: In this Appendix, X = Duty Cycle and G = Antenna Gain. The test path transducer was directly calculated into results for each test range.

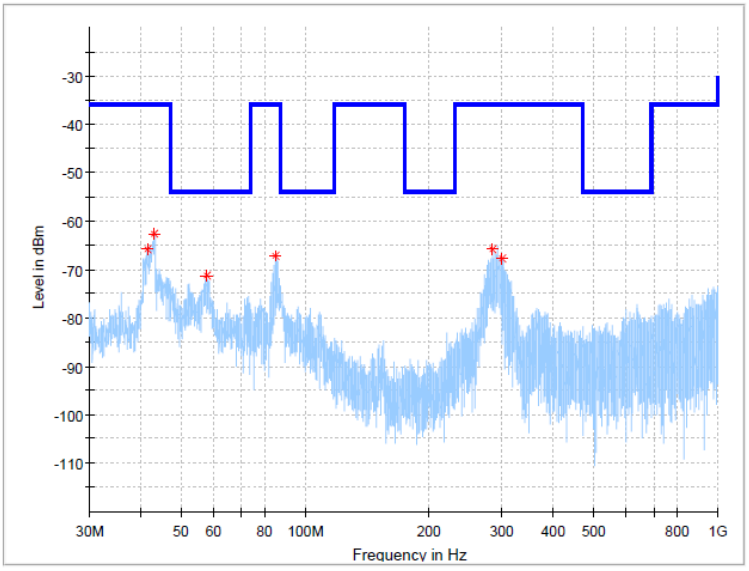
(1) Common Parameter

Test Mode	Power Level Setting defined by Manufacturer	X [%]	G [dBi]
Normal	Ant 1: highest	100	+2.33dBi

(2) Test Result

Note: The test results for testing range of “30 MHz to 12.75 GHz” showed as below is the WORST case for all Test Modes and Channels.

Operating Condition: Tx, below 1GHz, Horizontal



Frequency (MHz)	MaxPeak (dBm)
41.322000	-65.77
43.024000	-62.46
57.713000	-71.18
84.945000	-67.09
285.337000	-65.72
299.323000	-67.69

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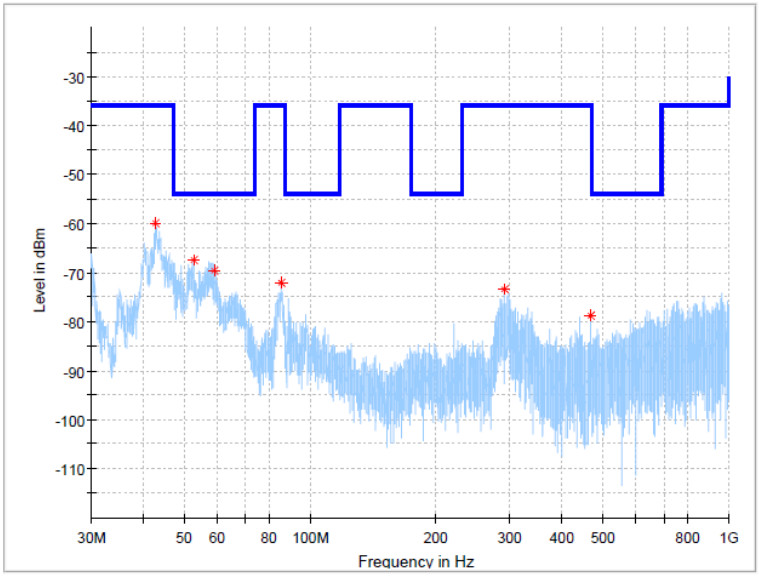
Operating Condition: Tx, below 1GHz, Vertical



Frequency (MHz)	MaxPeak (dBm)
42.839000	-59.90
52.607000	-67.51
58.897000	-69.64
85.537000	-72.09
291.479000	-73.40
466.320000	-78.76

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10 Appendix B: Receiver Spurious Emissions

NOTE 1: The whole testing range is from “30 MHz to 12.75 GHz” is divided into 2 parts according to the test site settings, which are:
- Part 1: Test range of “30 MHz to 1 GHz”,
- Part 2: Test range of “1 GHz to 12.75 GHz”.

NOTE 2: In this Appendix, X = Duty Cycle and G = Antenna Gain. The test path transducer was directly calculated into results for each test range.

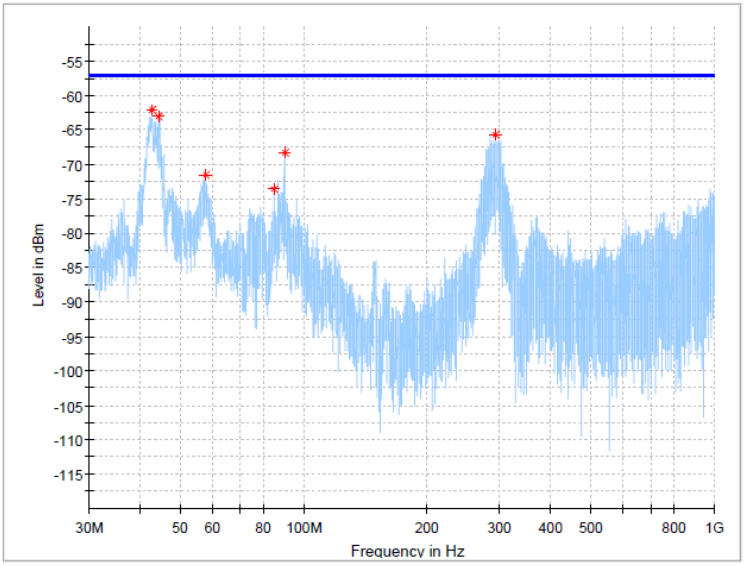
(1) Common Parameter

Test Mode	Power Level Setting defined by Manufacturer	X [%]	G [dBi]
Normal	Ant 1: highest	100	+1.72dBi

(2) Test Result

NOTE: Only test results and plots under the WORST case are reported.

Operating Condition: Rx, below 1GHz, Horizontal



Frequency (MHz)	MaxPeak (dBm)
42.654000	-62.01
44.393000	-63.05
57.713000	-71.54
84.797000	-73.51
89.681000	-68.30
293.329000	-65.67

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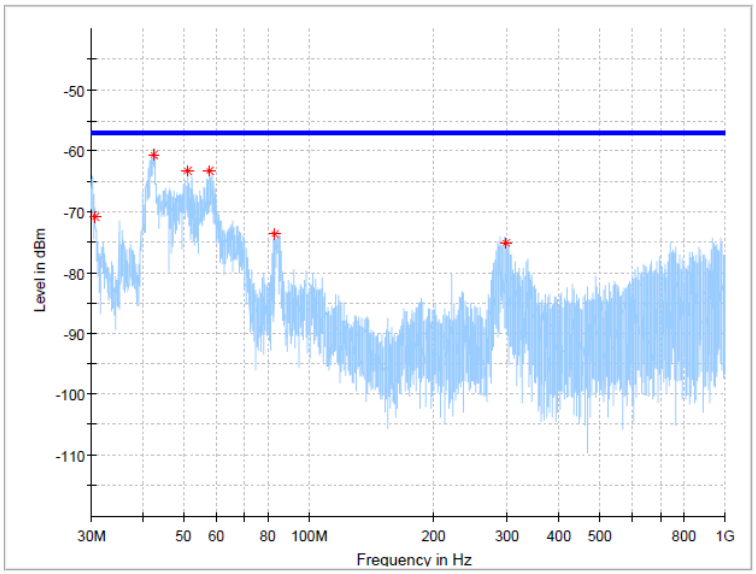
Operating Condition: Rx, below 1GHz, Vertical



Frequency (MHz)	MaxPeak (dBm)
30.703000	-70.85
42.321000	-60.70
51.164000	-63.31
57.824000	-63.37
82.688000	-73.64
297.732000	-75.10

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5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478

11 Appendix I: Estimation of Exposure of Human to Electromagnetic Fields

According to EN 62311:2008 & EN 50665:2017, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	4 000/f	5 000/f	—
0,025-0,8 kHz	250/f	4/f	5/f	—
0,8-3 kHz	250/f	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	0,73/f	0,92/f	—
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

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5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478

For the 2.4GHz band the reference level is E field strength 61V/m

The Formula

$$r = \frac{\sqrt{30PG(\theta,\phi)}}{E}$$

Whereas,
G=antenna gain relative to an isotropic antenna
Θ Φ= elevation and azimuth angles to point of investigation
r=distance from observation point to the antenna
P=the maximum output power of transmitter.

1) For HMS-800W
The maximum e.i.r.p of the transmitter is 18.87dBm=77.093mW=0.077093W
Since e.i.r.p is used for this calculation, G was set as 1.

The distance r= 0.02493m=2.493cm

The antenna of the product, under normal use condition is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20 cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

So the requirement is easily met for the user if only user is not close extremely to the product.

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5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478

12 Appendix J: Test Setup Photos

Spurious Emission Below 1GHz

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5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478

13 Appendix K: EUT Photos

Refer to report No.: 64.972.23.30372.01

THE END

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F, Communication Building,163 Pingyun Rd, Huangpu Ave. West Guangzhou, P.R.China TEL: +86 20 3832 0668 FAX: +86 20 3832 0478