RF TEST REPORT

Report No: FCS202604148W01

Issued for

Applicant::	Mid Ocean Brands B.V.
Address:	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Product Name:	Wireless Speaker
Brand Name:	N/A
Model Name:	MO2378
Series Model:	N/A
Test Standard:	ETSI EN 300 328 V2.2.2 (2019-07)

Issued By: Dongguan Funas Testing Technology Co.,Ltd
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TEST REPORT CERTIFICATION

Applicant's name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacture's Name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.

Product description

Product Name..... :	Wireless Speaker
Brand Name ..... :	N/A
Model Name:..... :	MO2378
Series Model..... :	N/A
Test Standards..... :	ETSI EN 300 328 V2.2.2 (2019-07)

This device described above has been tested by FCS, and the test results show that the equipment under test (EUT) is in compliance with the 2014/53/EU RED Directive Art.3.2 requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test..... :	
Date (s) of performance of tests..... :	Apr 14, 2026~Apr 23, 2026
Date of Issue..... :	Apr 23, 2026
Test Result..... :	**Pass**

Tested by	:	Jojo Wu
		(Jojo Wu)
Reviewed by	:	Jojo Wu
		(Jojo Wu)
Approved by	:	Jack Wang
		(Jack Wang)

Tabl of Contents Page

Rev.	Issue Date	Report No.	Effect Page	Contents
00	Apr 23, 2026	FCS202604148W01	All	Initial Issue
Note: Format version of the report -V00				

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

ETSI EN 300 328 V2.2.2			
Test Item	Limit	Frequency Range (MHz)	Applicable (Yes/No)
TRANSMITTER PARAMETERS			
RF output power	Clause 4.3.2.2.3	2400-2483.5	Y
Power Spectral Density	Clause 4.3.2.3.3		Y
Duty Cycle, Tx-sequence, Tx-gap	Clause 4.3.2.4.3		N
Medium Utilisation	Clause 4.3.2.5.3		N
Adaptivity (adaptive equipment using modulations other than FHSS)	Clause 4.3.2.6		N
Occupied Channel Bandwidth	Clause 4.3.2.7.3		Y
Transmitter unwanted emissions in the OOB domain	Clause 4.3.2.8.3	FL=2400-2BW FH=2483.5+2BW	Y
Transmitter unwanted emissions in the spurious domain(Conducted)	Clause 4.3.2.9.3	30-12750	N
Transmitter unwanted emissions in the spurious domain(Radiated)			Y
RECEIVER PARAMETERS			
Spurious emissions (Conducted)	Clause 4.3.2.10.3	30-12750	N
Spurious emissions (Radiated)			Y
Receiver Blocking	Clause 4.3.2.11.3	2400-2483.5	Y
Geo-location capability	Clause 4.3.2.12.3	--	N

1.1 Testing laboratory

Company Name:	Dongguan Funas Testing Technology Co., Ltd.
Address:	Room 105, 1/F.. Baohao Technology Building 1, No.15, Gongye West Road.Songshan Lake Hi-Tech Industrial Area, Dongguan, Guangdong, China
Telephone:	+86-0769-27280901
Fax:	+86-0769-27280901
Laboray Accreditations	
FCC Test Firm Registration Number: 514908 CNAS Number： L15566 Designation number：CN0127 A2LA accreditation number：5545.01 ISED Number：25801	

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended 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	RF power,conducted	±0.71dB
2	Spurious emissions,conducted	±0.63dB
3	Spurious emissions,radiated(>1G)	±2.25dB
4	Spurious emissions,radiated(<1G)	±2.21dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Product Name</td><td>Wireless Speaker</td></tr>
<tr><td>Brand Name</td><td>N/A</td></tr>
<tr><td>Model Name</td><td>MO2378</td></tr>
<tr><td>Series Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Wireless Speaker.

<table><tr><td>Operation Frequency:</td><td>2402~2480 MHz</td></tr><tr><td>Modulation Type:</td><td>☑GFSK ☐ π /4-DQPSK ☐8DPSK</td></tr><tr><td>Number Of Channel</td><td>☐40CH for BLE ☑79CH for BT</td></tr><tr><td>transmission rate</td><td>☑1Mbit/s ☐ 2Mbit/s</td></tr><tr><td>Antenna Designation:</td><td>PCB Antenna</td></tr><tr><td>Channel separation:</td><td>1MHz</td></tr><tr><td>Antenna Gain(Peak)</td><td>0 dBi</td></tr></table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Refer to below</td></tr>
<tr><td>Power Supply</td><td>Input: DC9V/3A；5V/3A
Output: DC5V/1A, 7.5V/1A, 9V/1.1A, 9V/1.67A 15W MAX</td></tr>
<tr><td>Battery</td><td>Rated Voltage: 3.7V
Capacity: 1200mAh</td></tr>
<tr><td>Hardware version number</td><td>V1.0</td></tr>
<tr><td>Software version number</td><td>V1.0</td></tr>
</table>

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

2.

Channel	Frequency (MHz)
00	2402
01	2403
02	2404
……	…….
39	2441
40	2442
41	2443
……	…….
77	2479
78	2480

a) The type of modulation used by the equipment:
■FHSS
□other forms of modulation

b) In case of FHSS modulation:
•In case of non-Adaptive Frequency Hopping equipment:
The number of Hopping Frequencies:
•In case of Adaptive Frequency Hopping Equipment:
The maximum number of Hopping Frequencies: 79
The minimum number of Hopping Frequencies: 79
The (average) Dwell Time:

c) Adaptive / non-adaptive equipment:
□non-adaptive Equipment
■adaptive Equipment without the possibility to switch to a non-adaptive mode
□adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:
The Channel Occupancy Time implemented by the equipment:
□The equipment has implemented an LBT based DAA mechanism
• In case of equipment using modulation different from FHSS:
■The equipment is Frame Based equipment
□The equipment is Load Based equipment
□The equipment can switch dynamically between Frame Based and Load Based equipment
The CCA time implemented by the equipment: ..... μs
The value q as referred to in clause 4.3.2.5.2.2.2 .....
□The equipment has implemented an non-LBT based DAA mechanism
□The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:
The maximum RF Output Power (e.i.r.p.):…….dBm
The maximum (corresponding) Duty Cycle: ……..%
Equipment with dynamic behavior, that behavior is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared):

f) The worst case operational mode for each of the following tests:

- RF Output Power
  GFSK
- Accumulated Transmit Time, Frequency Occupation & Hopping Sequence
- GFSK
  Hopping Frequency Separation (only for FHSS equipment)
  GFSK
- Occupied Channel Bandwidth
  GFSK
- Transmitter unwanted emissions in the OOB domain
  GFSK
- Transmitter unwanted emissions in the spurious domain
  GFSK
- Receiver spurious emissions
  GFSK
  - Receiver Blocking
  GFSK

g) The different transmit operating modes (tick all that apply):

■Operating mode 1: Single Antenna Equipment
■Equipment with only 1 antenna
□Equipment with 2 diversity antennas but only 1 antenna active at any moment in time
□Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (BT mode in smart antenna systems)
□Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming
□Single spatial stream / Standard throughput / (BT mode)
□High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
□High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
NOTE: Add more lines if more channel bandwidths are supported.
□Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming
□Single spatial stream / Standard throughput (BT mode)
□High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
□High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2
NOTE: Add more lines if more channel bandwidths are supported.

h) In case of Smart Antenna Systems:

- The number of Receive chains: .....
- The number of Transmit chains: .....

□symmetrical power distribution
□asymmetrical power distribution
In case of beam forming, the maximum beam forming gain: .....
NOTE: Beam forming gain does not include the basic gain of a single antenna.

i) Operating Frequency Range(s) of the equipment:

- Operating Frequency Range 1: 2402 MHz to 2480 MHz
- Operating Frequency Range 2:

NOTE: Add more lines if more Frequency Ranges are supported.

j) Occupied Channel Bandwidth(s):

Occupied Channel Bandwidth : 0.767 MHz
Occupied Channel Bandwidth : 1.246 MHz
NOTE: Add more lines if more channel bandwidths are supported.

k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

■Stand-alone

□Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

□Plug-in radio device (Equipment intended for a variety of host systems)

Other .....

l) The extreme operating conditions that apply to the equipment:

Operating temperature range:-10° C to 55° C

Operating voltage range: Power Supply or AC/DC adapter: DC 9V

(Normal: N/A)

□Details provided are for the:

■stand-alone equipment

□combined (or host) equipment

□test jig

m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:

• Antenna Type

■PCB antenna

Antenna Gain: 0 dBi

If applicable, additional beamforming gain (excluding basic antenna gain): ..... dB

□Temporary RF connector provided

□No temporary RF connector provided

□Dedicated Antennas (equipment with antenna connector)

□Single power level with corresponding antenna(s)

□Multiple power settings and corresponding antenna(s)

Number of different Power Levels: .....

Power Level 1: ..... dBm

Power Level 2: ..... dBm

Power Level 3: ..... dBm

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

•For each of the Power Levels, provide the intended antenna assemblies, their, corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable

Power Level 1: ..... dBm

Number of antenna assemblies provided for this power level: .....

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1	0	3.83	N/A
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 2: ..... dBm
Number of antenna assemblies provided for this power level: .....

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 3: ..... dBm
Number of antenna assemblies provided for this power level: .....

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:
Details provided are for the: ■stand-alone equipment
☐combined (or host) equipment
☐test jig Supply Voltage
☐AC mains State AC voltage 220-240 V
☑DC State DC voltage:9V
In case of DC, indicate the type of power source
☐Internal Power Supply
□External Power Supply or AC/DC adapter
☑Battery: 3.7V
□Other: .....

o) Describe the test modes available which can facilitate testing:

RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
BT	BDR	GFSK	0	default	Engineering mode
		N/A	0	N/A	
		N/A	0	N/A	

p) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.):
BT

q) If applicable, the statistical analysis referred to in clause 5.4.1 q)
(to be provided as separate attachment)

r) If applicable, the statistical analysis referred to in clause 5.4.1 r)

(to be provided as separate attachment)

s) Geo-location capability supported by the equipment:
□ Yes
□The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user
■ No
t) Describe the minimum performance criteria that apply to the equipment (see clause 4.3.1.12.3 or clause 4.3.2.11.3):

2.2 ENVIRONMENTAL CONDITIONS FOR TESTING

Test Condition	Temperature(℃)	Voltage(V)	Relative Humidity (%)
NT/NV	24.2	9V	37
LT/NV	-10	9V	/
HT/NV	55	9V	/

Note:

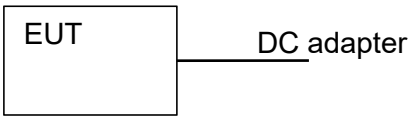
(1) The HT 55°C and LT -10°C was declare by manufacturer, The EUT couldn't be operate normally with higher or lower temperature.

(2) NV: Normal Voltage; NT: Normal Temperature.

(3) LT: Low Extreme Test Temperature; HT: High Extreme Test Temperature.

2.3 TEST MODE

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.



The EUT was programmed to be in continuously transmitting mode.

Test Channel	EUT Channel	Test Frequency (MHz)
lowest	CH00	2402
middle	CH39	2441
highest	CH78	2480

2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

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.

2.5 EQUIPMENTS LIST

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Bilog Antenna	TESEQ	CBL6111D	34678	2025.08.25	2026.08.24
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2025.08.25	2026.08.24
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2025.08.25	2026.08.24
Pre-Amplifier(1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2025.08.25	2026.08.24
Wireless Communications Test Set	R&S	CMW 500	133884	2025.08.25	2026.08.24
Signal Analyzer	Agilent	N9020A	MY51110105	2025.08.25	2026.08.24
Temperature & Humidity	HH660	Mieo	N/A	2025.08.25	2026.08.24
turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N.C.R	N.C.R

RF Connected Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2025.08.25	2026.08.24
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2025.08.25	2026.08.24
			MY55520006	2025.08.25	2026.08.24
			MY56120038	2025.08.25	2026.08.24
			MY56280002	2025.08.25	2026.08.24
Signal Generator	Agilent	N5182A	MY46240556	2025.08.25	2026.08.24
Signal Analyzer	Agilent	N9020A	MY49100060	2025.08.25	2026.08.24
Universal Radio communication tester	R&S	CMU200	11764	2025.08.25	2026.08.24
Wireless Communications Test Set	R&S	CMW 500	133884	2025.08.25	2026.08.24
Temperature & Humidity	HH660	Mieo	N/A	2025.08.25	2026.08.24
Temperature& Humidity test chamber	Safety test	GDS-250	171200018	2025.08.25	2026.08.24
programmable power supply	Agilent	E3642A	MY40002025	2025.08.25	2026.08.24
Attenuator	HP	8494B	DC-18G	2025.08.25	2026.08.24
AC Power Source	APC	KDF-11010G	F214050035	N.C.R	N.C.R
Router	WAVLINK	WL-WN575A2	WL1512260336	N.C.R	N.C.R

3. RF OUTPUT POWER

3.1 LIMIT

FHSS:
The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm. The maximum RF output power for non-adaptive Frequency Hopping equipment shall be declared by the manufacturer. See clause 5.4.1 m). The maximum RF output power for this equipment shall be equal to or less than the value declared by the manufacturer. This declared value shall be equal to or less than 20 dBm.
Other than FHSS:
For adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be20 dBm. The maximum RF output power for non-adaptive equipment shall be declared by the supplier and shall not exceed20 dBm. See clause 5.4.1 m). For non-adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be equal to or less than the value declared by the supplier.
This limit shall apply for any combination of power level and intended antenna assembly.

Limit
20 dBm

Between the start and stop times of each individual burst calculate the RMS power over the burst using the formula below. Save these P_{burst} values, as well as the start and stop times for each burst.

$$P_{burst} = \frac{1}{k}\sum_{n=1}^{k} P_{sample}(n)$$

with 'k' being the total number of samples and 'n' the actual sample number

3.2 TEST PROCEDURES

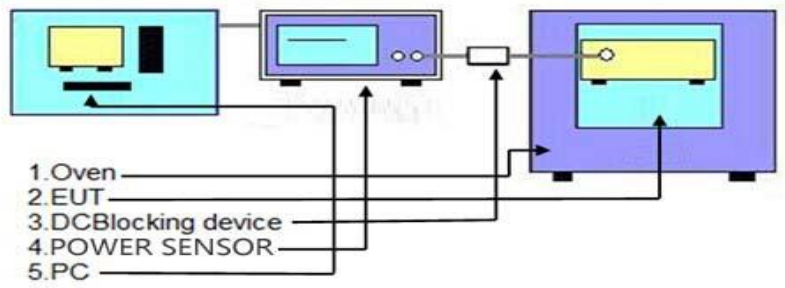
1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.2 for the measurement method.

a) Use a fast power sensor suitable for 2.4 GHz and capable of 1 MS/s.
Use the following settings:
- Sample speed 1 MS/s or faster.
- The samples must represent the power of the signal.
- Measurement duration: For non-adaptive equipment: equal to the observation period defined in b)

b) Clause 4.3.1.3.2 or clause 4.3.2.4.2. For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured

c) Print the plots from power sensor by used power sensor on PC, select the max result and record it.

3.3 TEST SETUP

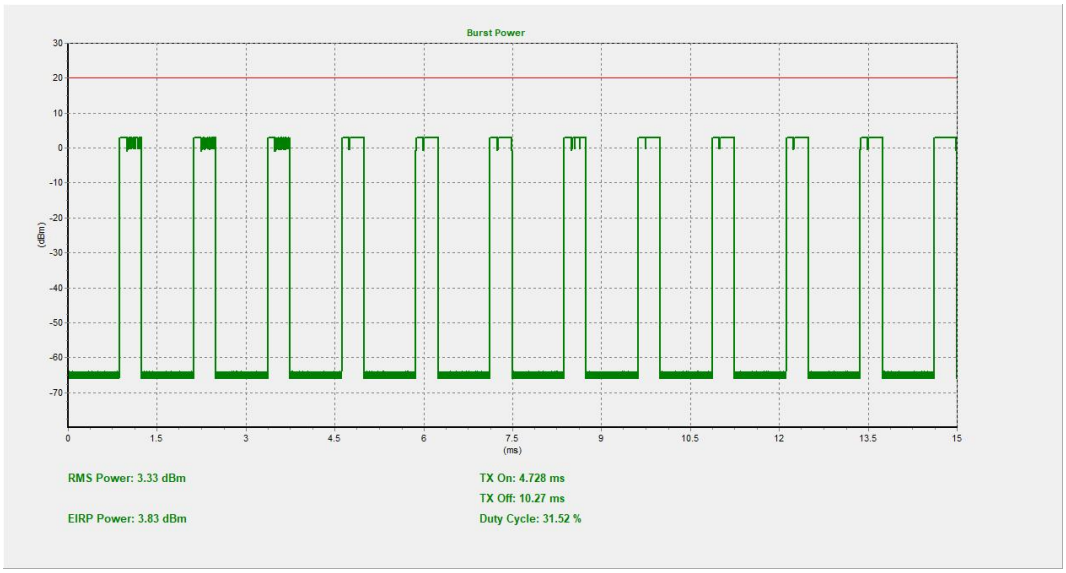


3.4 TEST RESULT

Modulation		GFSK		
Test conditions		Normal	Extreme	
			LTNV	HTNV
EIRP (dBm)	Hopping	3.83	3.81	3.80
	Max. E.I.R.P	3.83		
Limit		20dBm (-10dBW)		
Burst plot		> 10		
Result		Complies		

Note: Average EIRP Power = Burst power + the antenna gain value

GFSK HOPPING



4. ACCUMULATED TRANSMIT TIME, FREQUENCY OCCUPATION & HOPPING SEQUENCE

4.1 LIMIT

Non-adaptive frequency hopping systems

The Accumulated Transmit Time on any hopping frequency shall not be greater than 15 ms within any observation period of 15 ms multiplied by the minimum number of hopping frequencies (N) that have to be used.

Non-adaptive medical devices requiring reverse compatibility with other medical devices placed on the market that are compliant with version 2.0.2 or earlier versions of ETSI EN 300 328, are allowed to have an operating mode in which the maximum Accumulated Transmit Time is 400 ms within any observation period of 400 ms multiplied by the minimum number of hopping frequencies (N) that have to be used, only when communicating to these legacy devices already placed on the market. In order for the equipment to comply with the Frequency Occupation requirement, it shall meet either of the following two options:

Option 1: Each hopping frequency of the hopping sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.

Option 2: The occupation probability for each frequency shall be between ((1 / U) × 25 %) and 77 % where U is the number of hopping frequencies in use.

The hopping sequence(s) shall contain at least N hopping frequencies where N is 15 or 15 divided by the minimum Hopping Frequency Separation in MHz, whichever is the greater.

Adaptive frequency hopping equipment

Adaptive Frequency Hopping equipment shall be capable of operating over a minimum of 70 % of the band specified in clause 1.

The Accumulated Transmit Time on any hopping frequency shall not be greater than 400 ms within any observation period of 400 ms multiplied by the minimum number of hopping frequencies (N) that have to be used. In order for the equipment to comply with the Frequency Occupation requirement, it shall meet either of the following two options:

Option 1: Each hopping frequency of the hopping sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.

Option 2: The occupation probability for each frequency shall be between ((1 / U) × 25 %) and 77 % where U is the number of hopping frequencies in use.

The hopping sequence(s) shall contain at least N hopping frequencies at all times, where N is 15 or 15 divided by the minimum Hopping Frequency Separation in MHz, whichever is the greater.

Other Requirements
For non-Adaptive Frequency Hopping equipment, from the N hopping frequencies defined in clause 4.3.1.4.3.1 above, the equipment shall transmit on at least one hopping frequency while other hopping frequencies are blacklisted. For equipment that blacklists one or more hopping frequencies, these blacklisted frequencies are considered as active transmitting for the calculation of the MU factor of the equipment. See also clause 5.4.2.2.1.3 step 4, second bullet item and clause 5.4.2.2.1.4 step 3, note 2.For Adaptive Frequency Hopping equipment, from the N hopping frequencies defined in clause 4.3.1.4.3.2 above, the equipment shall consider at least one hopping frequency for its transmissions. Providing that there is no interference present on this frequency with a level above the detection threshold defined in clause 4.3.1.7.2.2 point 5 or clause 4.3.1.7.3.2 point 5, then the equipment shall have transmissions on this frequency. For non-Adaptive Frequency Hopping equipment, when not transmitting on a hopping frequency, the equipment has to occupy that frequency for the duration of the typical dwell time (see also definition for blacklisted frequency in clause 3.1).
For Adaptive Frequency Hopping equipment using LBT based DAA, if a signal is detected during the CCA, the equipment may jump immediately to the next frequency in the hopping sequence (see clause 4.3.1.7.2.2 point 2)
provided the limit for maximum dwell is respected.

4.2 TEST PROCEDURE

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.4.1 for the test conditions.

2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.4.2 for the measurement method.

a) Set EUT work in hopping mode;

b) Centre Frequency: Equal to the hopping frequency being investigated

c) Frequency Span: 0 Hz

d) RBW:~ 50 % of the Occupied Channel Bandwidth(383.5K for 1M, 623K for 3M)

e) VBW: ≥ RBW (383.5KHz for 1M,623KHz for 3M)

f) Detector Mode: RMS

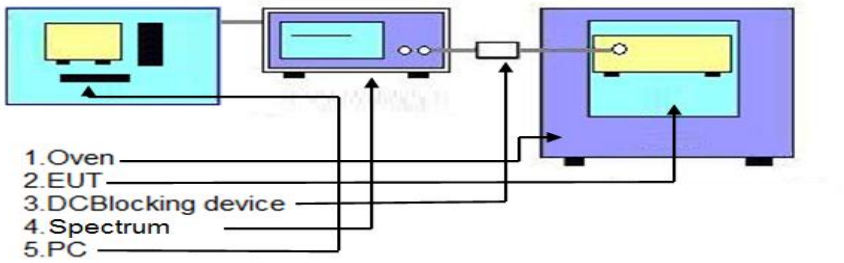
g) Sweep time: Equal to the applicable observation period (see clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2)

h) Number of sweep points: 30000

j) Trace mode: Clear / Write

k) Trigger: Free Run

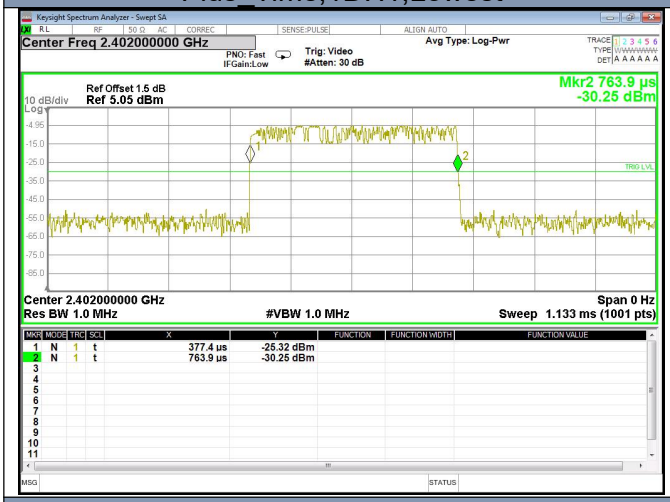
4.3 TEST SETUP



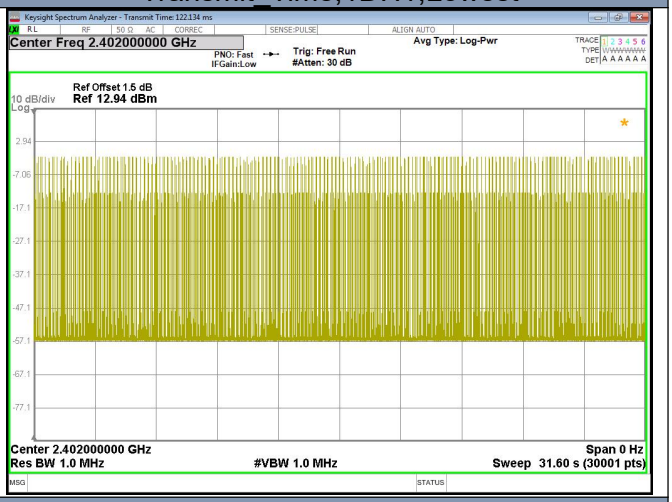
4.4 TEST RESULT

Accumulated_Transmit_Time								
Condition	Mode	Frequency(MHz)	Pulse Time(ms)	Accumulated Transmit Time(ms)	Limit(ms)	Sweep Time(ms)	Burst Number	Results
NVNT	1DH1	2402	0.387	122.292	400	31600	316	Pass
NVNT	1DH1	2480	0.387	123.840	400	31600	320	Pass
NVNT	1DH3	2402	1.645	245.105	400	31600	149	Pass
NVNT	1DH3	2441	1.645	250.040	400	31600	152	Pass
NVNT	1DH5	2402	2.896	289.600	400	31600	100	Pass
NVNT	1DH5	2480	2.896	289.600	400	31600	100	Pass

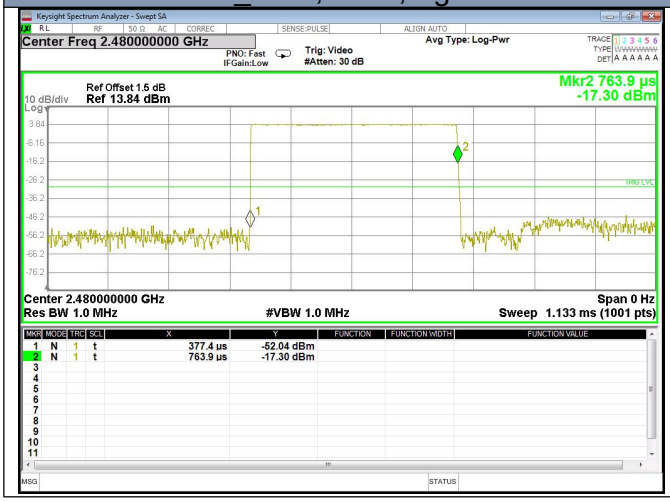
Plus_Time,1DH1,Lowest



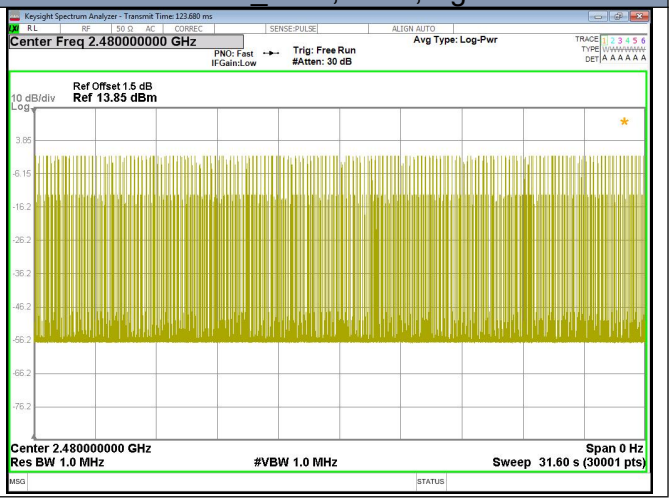
Transmit_Time,1DH1,Lowest



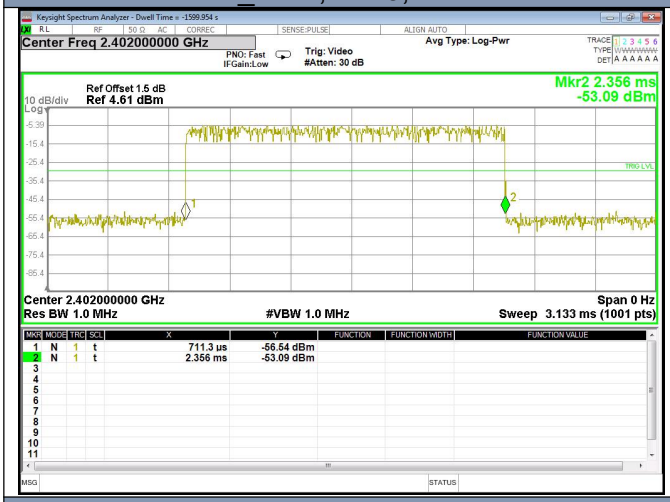
Plus_Time,1DH1,Highest



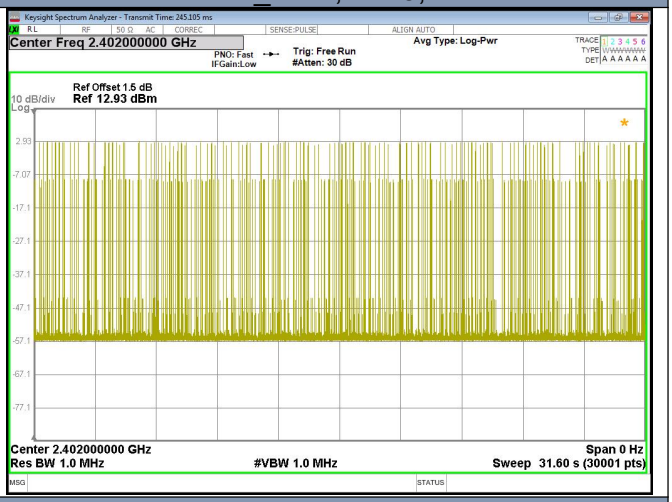
Transmit_Time,1DH1,Highest



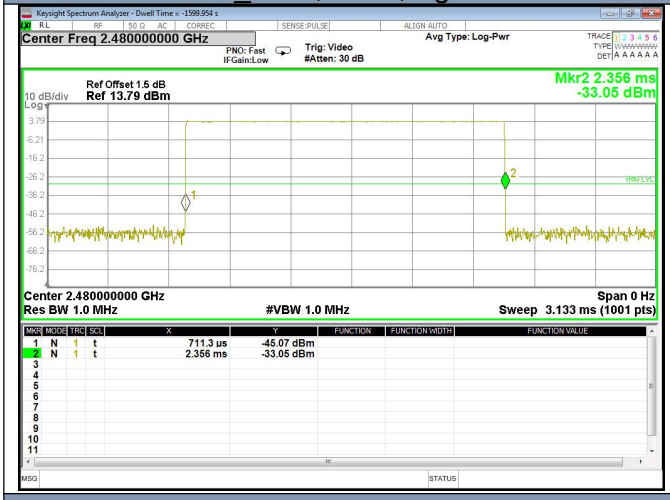
Plus_Time,1DH3,Lowest



Transmit_Time,1DH3,Lowest

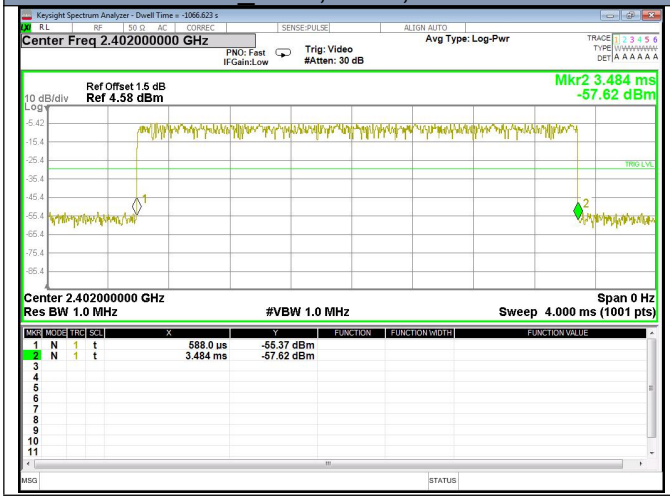


Plus_Time,1DH3,Highest

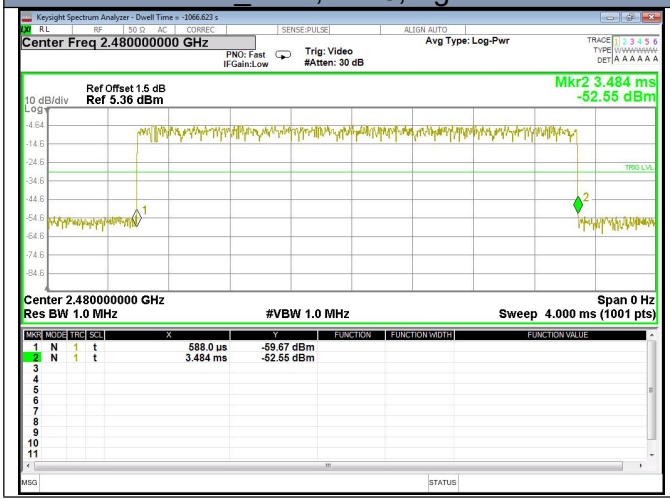


Transmit_Time,1DH3,Highest

Plus_Time,1DH5,Lowest



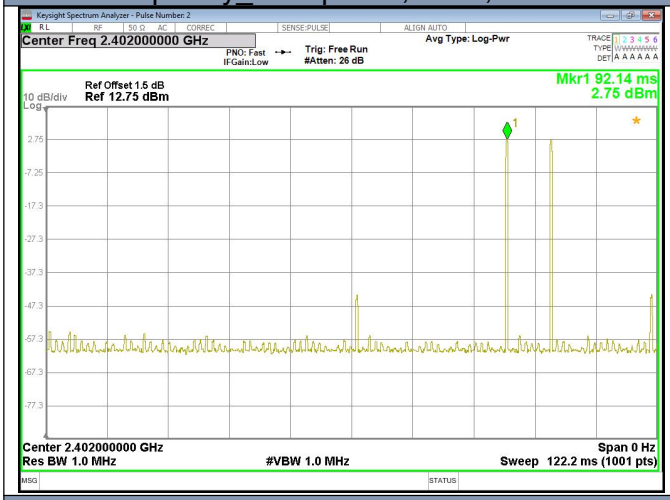
Transmit_Time,1DH5,Lowest

Plus_Time,1DH5,Highest	Transmit_Time,1DH5,Highest
	

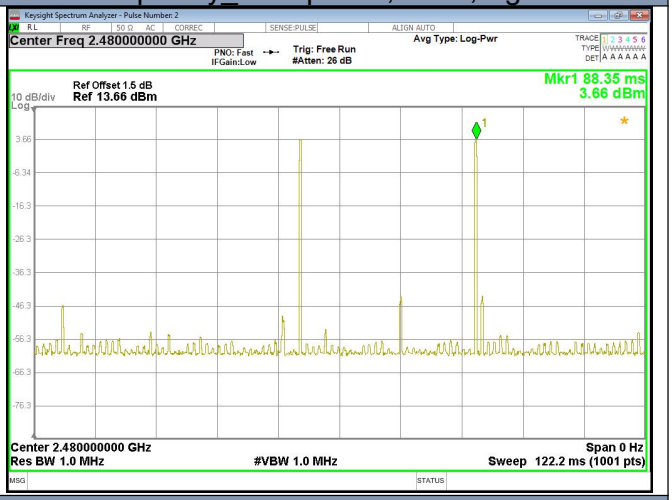
Frequency Occupation

Condition	Mode	Frequency (MHz)	Frequency Occupation (ms)	Limit (ms)	Sweep Time (ms)	Burst Number	Verdict
NVNT	1DH1	2402	0.387	>0	122.134	2	Pass
NVNT	1DH1	2480	0.387	>0	122.134	2	Pass
NVNT	1DH5	2402	2.896	>0	915.136	1	Pass
NVNT	1DH5	2480	2.896	>0	915.136	1	Pass

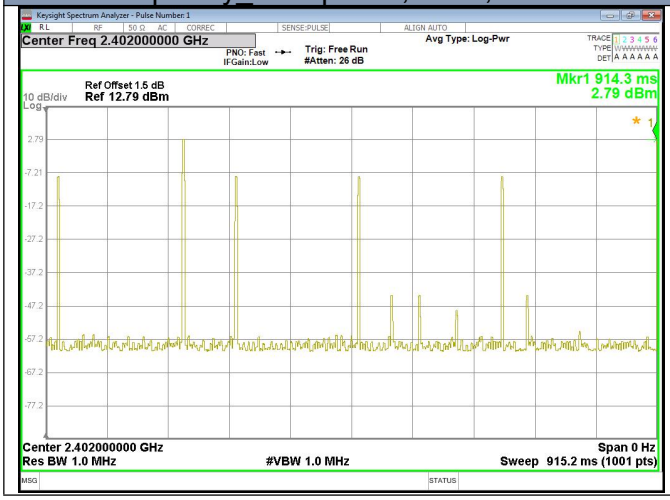
Frequency_Occupation,1DH1,Lowest



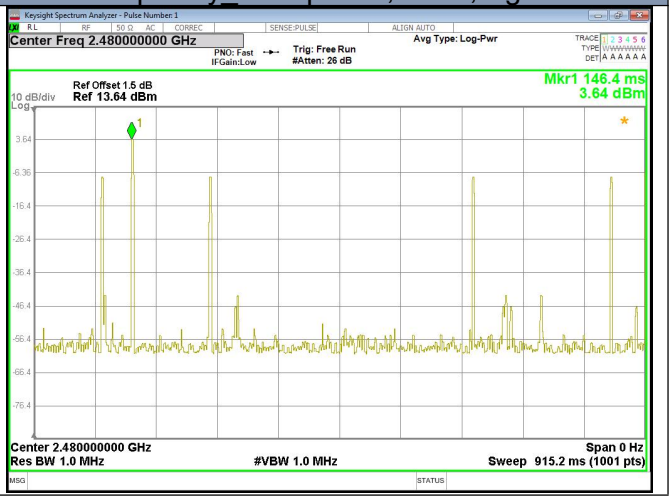
Frequency_Occupation,1DH1,Highest



Frequency_Occupation,1DH5,Lowest



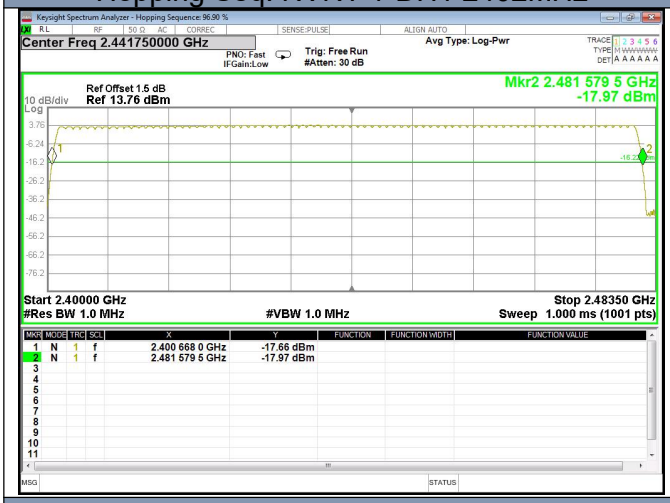
Frequency_Occupation,1DH5,Highest



Hopping_Sequence

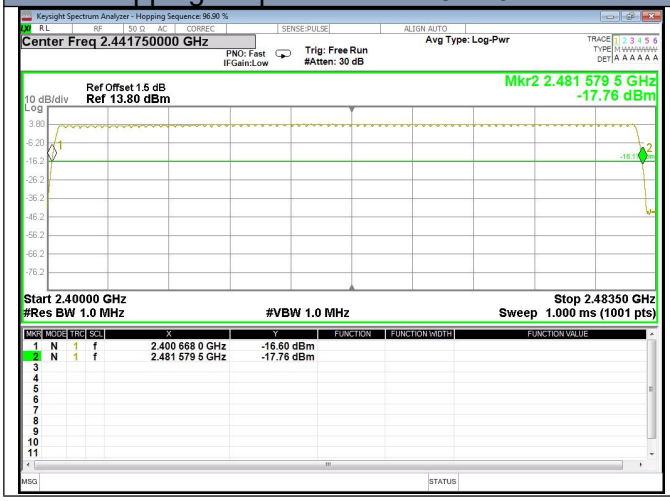
Condition	Mode	Hopping Number	Limit	Band Allocation (%)	Limit Band Allocation (%)	Verdict
NVNT	1-DH1	79	15	97.000	70	Pass
NVNT	1-DH3	79	15	96.900	70	Pass
NVNT	1-DH5	79	15	96.900	70	Pass

Hopping Seq. NVNT 1-DH1 2402MHz



Hopping Seq. NVNT 1-DH3 2402MHz

Hopping Seq. NVNT 1-DH5 2402MHz



5. HOPPING FREQUENCY SEPARATION

5.1 LIMIT

a. Non-adaptive frequency hopping systems

For non-adaptive Frequency Hopping equipment, the Hopping Frequency Separation shall be equal to or greater than the Occupied Channel Bandwidth (see clause 4.3.1.8), with a minimum separation of 100 kHz.

For equipment with a maximum declared RF Output power level of less than 10 dBm e.i.r.p. or for non-adaptive Frequency Hopping equipment operating in a mode where the RF Output power is less than 10 dBm e.i.r.p. only the minimum Hopping Frequency Separation of 100 kHz applies.

b. Adaptive frequency hopping systems

For adaptive Frequency Hopping equipment, the minimum Hopping Frequency Separation shall be 100 kHz.

Adaptive Frequency Hopping equipment that switched to a non-adaptive mode for one or more hopping frequencies because interference was detected on these hopping frequencies with a level above the threshold level defined in clause 4.3.1.7.2.2, point 5 or clause 4.3.1.7.3.2, point 5, is allowed to continue to operate with a minimum Hopping Frequency Separation of 100 kHz as long as the interference remains present on these hopping frequencies. The equipment shall continue to operate in an adaptive mode on other hopping frequencies.

Adaptive Frequency Hopping equipment which decided to operate in a non-adaptive mode on one or more hopping frequencies without the presence of interference, shall comply with the limit in clause 4.3.1.5.3.1 for these hopping frequencies as well as with all other requirements applicable to non-adaptive frequency hopping equipment.

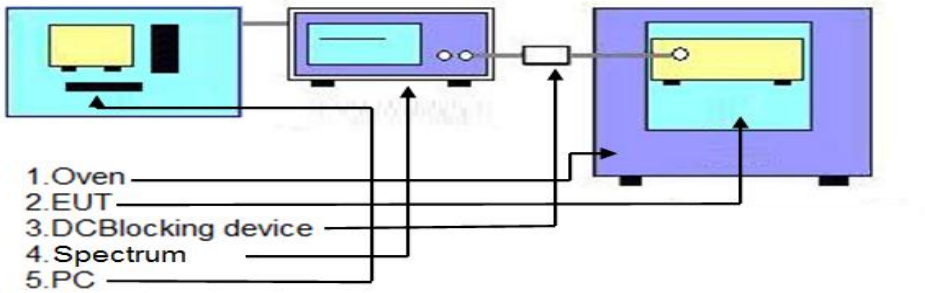
5.2 TEST PROCEDURE

a. Please refer to ETSI EN 300 328 (V2.1.1) clause 5.4.5.1 for the test conditions.

b. Please refer to ETSI EN 300 328 (V2.1.1) clause 5.4.5.2 for the measurement method.

- Centre Frequency: Centre of the two adjacent hopping frequencies
- Frequency Span: Sufficient to see the complete power envelope of both hopping frequencies
- RBW: 1 % of the Span
- RBW: 30K
  VBW:100K
- Detector Mode: RMS
- Trace Mode: Max Hold
- Sweep time: 1S

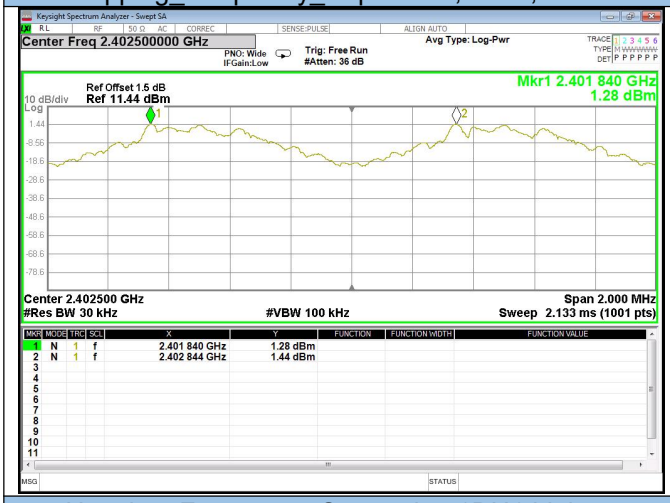
5.3 TEST SETUP



5.4 TEST RESULT

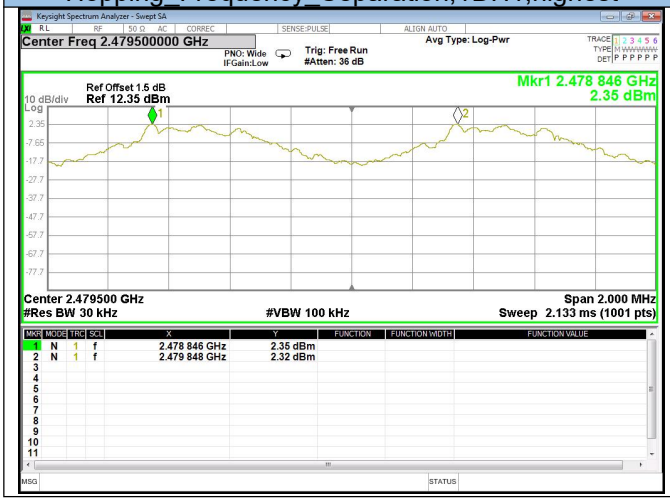
Hopping_Frequency_Separation					
Condition	Mode	Frequency(MHz)	Ch Separation(kHz)	Limit(kHz)	Result
NVNT	1DH1	2402	1004.0000	>100	Pass
NVNT	1DH1	2441	996.0000	>100	Pass
NVNT	1DH1	2480	1002.0000	>100	Pass

Hopping_Frequency_Separation,1DH1,lowest



Hopping_Frequency_Separation,1DH1,middle

Hopping_Frequency_Separation,1DH1,highest



6. OCCUPIED CHANNEL BANDWIDTH

6.1 LIMIT

The Occupied Channel Bandwidth for each hopping frequency shall fall completely within the band given in table 1.

For non-adaptive Frequency Hopping equipment with e.i.r.p. greater than 10 dBm, the Occupied Channel Bandwidth for every occupied hopping frequency shall be equal to or less than the Nominal Channel Bandwidth declared by the manufacturer. See clause 5.4.1 j). This declared value shall not be greater than 5 MHz.

6.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.1.1) clause 5.4.7.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.1.1) clause 5.4.7.2 for the measurement method.

-- Centre Frequency: The centre frequency of the channel under test

-- Resolution BW: ~ 1 % of the span without going below 1 %

--Frequency Span for frequency hopping equipment: Lowest frequency separation that is used within the hopping sequence)

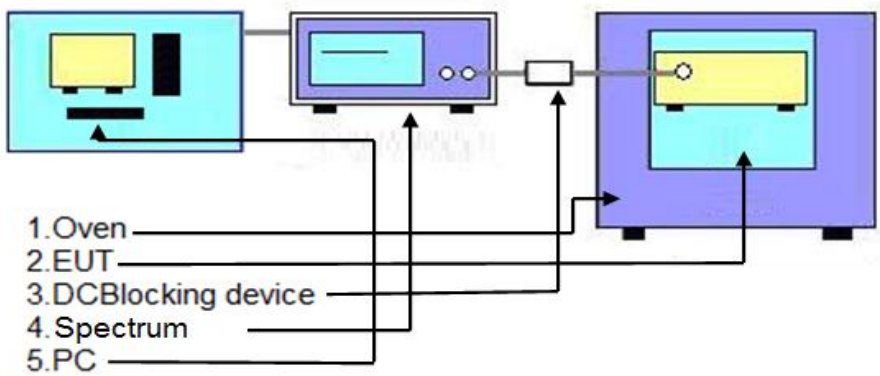
--Frequency Span for other types of equipment:2 × Nominal Channel Bandwidth (e.g. 2 MHz for a 1 MHz channel)

-- Detector Mode: RMS

--Trace Mode: Max Hold

--Sweep time:1S

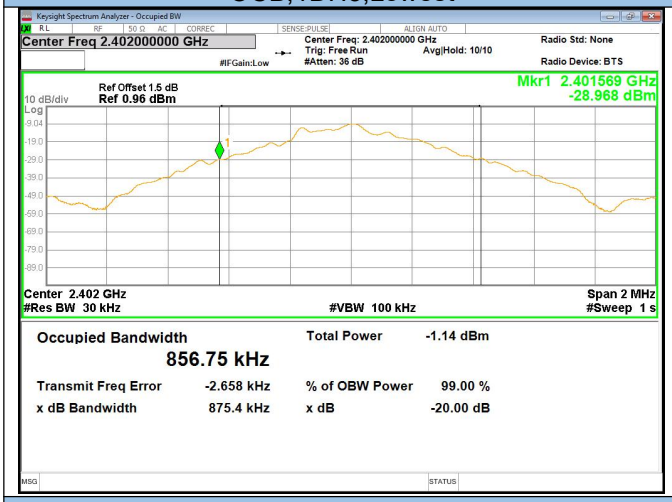
6.3 TEST SETUP



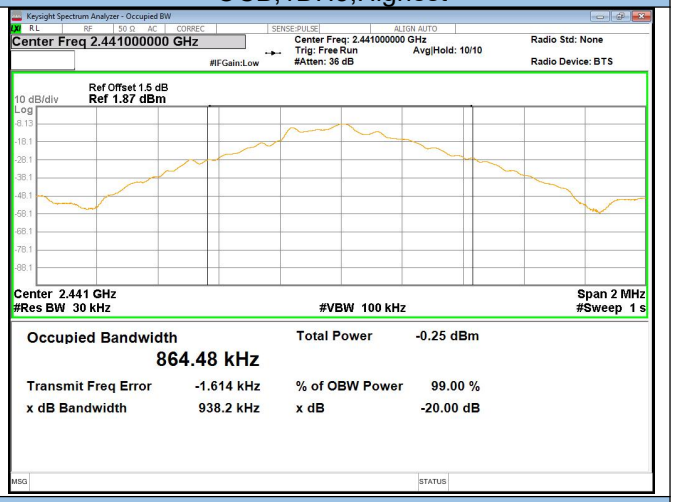
6.4 TEST RESULT

Occupied_Channel_Bandwidth								
Condition	Mode	Frequency(MHz)	OBW(MHz)	Lower Edge(MHz)	Upper Edge(MHz)	Limit Edge(MHz)	Results	Remark
NVNT	1DH1	2402	0.857	2401.569	NA	2400-2483.5MHz	Pass	
NVNT	1DH1	2441	0.864	2440.566	0.000	2400-2483.5MHz	Pass	
NVNT	1DH1	2480	0.872	NA	2480.437	2400-2483.5MHz	Pass	

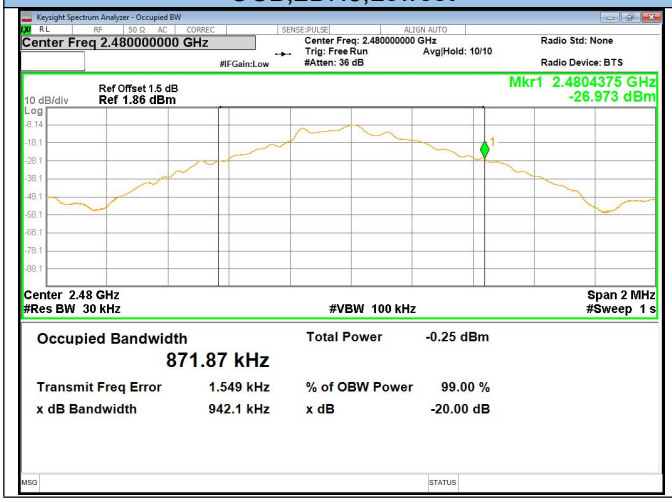
OCB,1DH5,Lowest



OCB,1DH5,Highest



OCB,2DH5,Lowest



7. TRANSMITTER UNWANTED EMISSIONS INTHE OOB DOMAIN

7.1 LIMIT

Clause	Frequency	Limit
4.3.1.9.3	2400-BW~2400 2483.5~2483.5+BW	-10dBm/MHz
	2400-2BW~2400-BW 2483.5+BW~2483.5+2BW	-20dBm/MHz
	<2400-2BW >2483.5+2BW	-30dBm/MHz

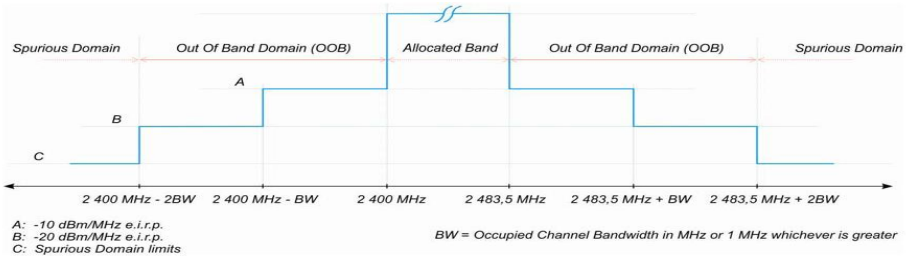


Figure 1: Transmit mask

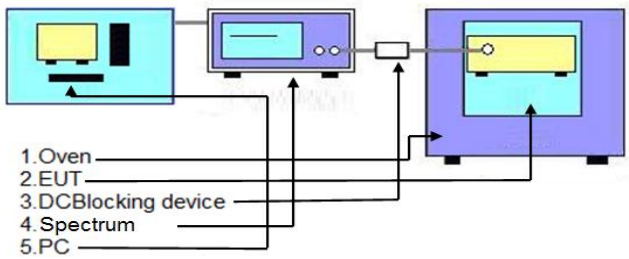
7.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.8.1 for the test conditions.

2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.8.2 for the measurement method.

For systems using FHSS modulation, the measurements shall be performed during normal operation (hopping).
•Connect the UUT to the spectrum analyser and use the following settings:
- Centre Frequency: 2 484 MHz
- Span: 0 Hz
- Resolution BW: 1 MHz
- Filter mode: Channel filter
- Video BW: 3 MHz
- Detector Mode: RMS
- Trace Mode: Max Hold
- Sweep Mode: Continuous
- Sweep Points: Sweep Time [s] / (1 µs) or 5 000 whichever is greater
- Trigger Mode: Video trigger; in case video triggering is not possible, an external trigger source maybe used
- Sweep Time: > 120 % of the duration of the longest burst detected during the measurement of the RF Output Power

7.3 TEST SETUP



7.4 TEST RESULT

Transmitter_unwanted_emissions_in_the_OOB									
Condition	Mode	CF (MHz)	M F (MHz)	Level (dBm/MHz)	Segment A Limit(dBm/MHz)	M F(MHz)	Level(dBm /MHz)	Segment B Limit(dBm /MHz)	Results
NVNT	1DH1	2402	2399.500	-47.18	-10	2398.500	-52.80	-20	Pass
NVNT	1DH1	2480	2484.000	-55.17	-10	2485.000	-55.86	-20	Pass

1DH1,Lowest	1DH1,Highest
	

8. SPURIOUS EMISSIONS – TRANSMITTER

8.1 LIMIT

Frequency range	Maximum power, e.r.p(≤1 GHz) e.i.r.p(> 1 GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 KHz
47 MHz to 74 MHz	-54 dBm	100 KHz
74 MHz to 87.5 MHz	-36 dBm	100 KHz
87.5 MHz to 118 MHz	-54 dBm	100 KHz
118 MHz to 174 MHz	-36 dBm	100 KHz
174 MHz to 230 MHz	-54 dBm	100 KHz
230 MHz to 470 MHz	-36 dBm	100 KHz
470 MHz to 862 MHz	-54 dBm	100 KHz
862 MHz to 1 GHz	-36 dBm	100 KHz
1 GHz to 12.75 GHz	-30 dBm	1 MHz

8.2 TEST PROCEDURES

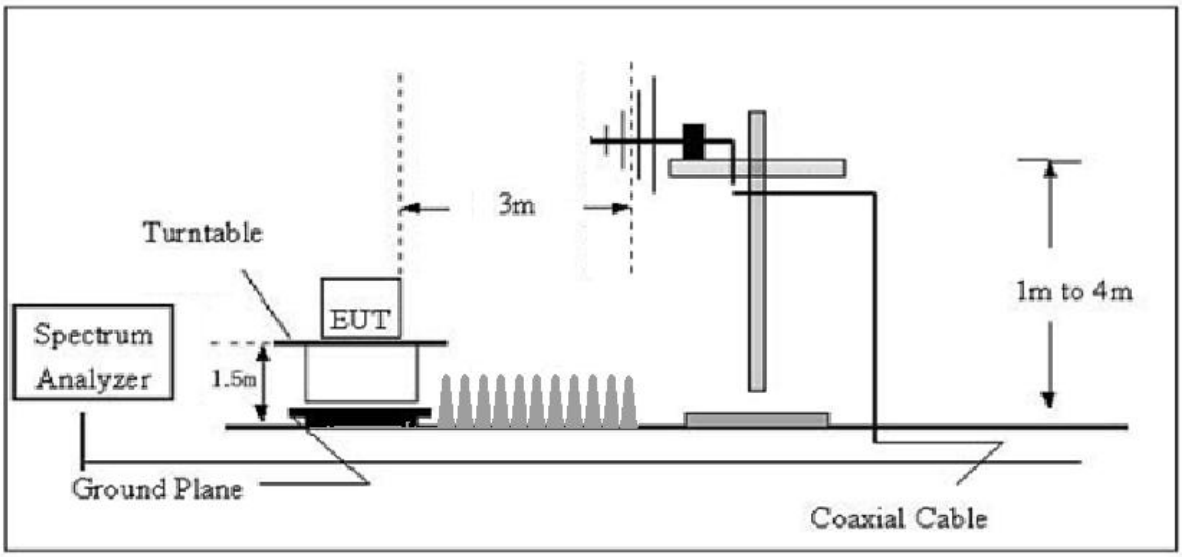
1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.9.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.9.2 for the measurement method.

Spectrum Analyzer	Setting	
Frequency Start to Stop	30 MHz to 1000 MHz	1000 MHz to 12750MHz
Resolution bandwidth	100 kHz	1 MHz
Video bandwidth	300 kHz	3 MHz
Filter type	3 dB (Gaussian)	
Detector mode	Peak	
Trace Mode	Max Hold	
Sweep Points	≥ 19 400 (Set as 20000)	≥ 23 500 (Set as 24000)
Sweep Time	For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, Below 1GHz such that for each 100 kHz frequency step, Above 1GHz such that for each 1MHz frequency step the measurement time is greater than two transmissions of the UUT, on any channel	

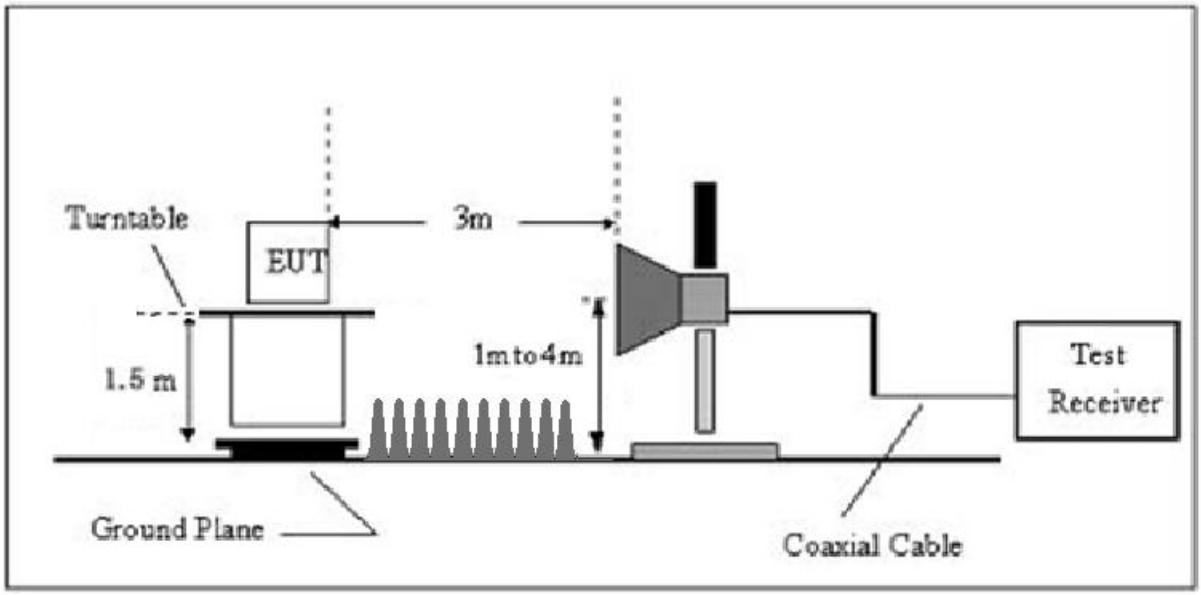
a. The EUT was placed on the top of the turntable in Semi Anechoic Room.
b. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
c. This measurement shall be repeated with the transmitter in standby mode where applicable.
d. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.
e. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
f. Replace the EUT by standard antenna and feed the RF port by signal generator.
g. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
h. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
i. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
j. If the level calculated in (9) is higher than limit by more than 6dB, then lower the RBW of the spectrum analyzer to 30KHz. If the level of this emission does not change by more than 2dB, then it is taken as narrowband emission, otherwise, wideband emission.
k. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.
l. EUT Orthogonal Axis:
"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand.

8.3 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



8.4 EUT OPERATION DURING TEST

1. The EUT was programmed to be in continuous transmitting mode.
2. For the initial investigation on the highest, lowest frequency, no significant differences in spurious emissions were observed between these 2 channels. The worst test data was shown
3. There is a filter used during the test, the fundamental signals will be not shown in the plot.
4. The EUT is connected with the GSM base station when the BT is transmitting.

8.5 TEST RESULT

Remark: The all data rate modes had been test, but only worse test data was recorded in the test report.

TX 8DPSK/2402MHz

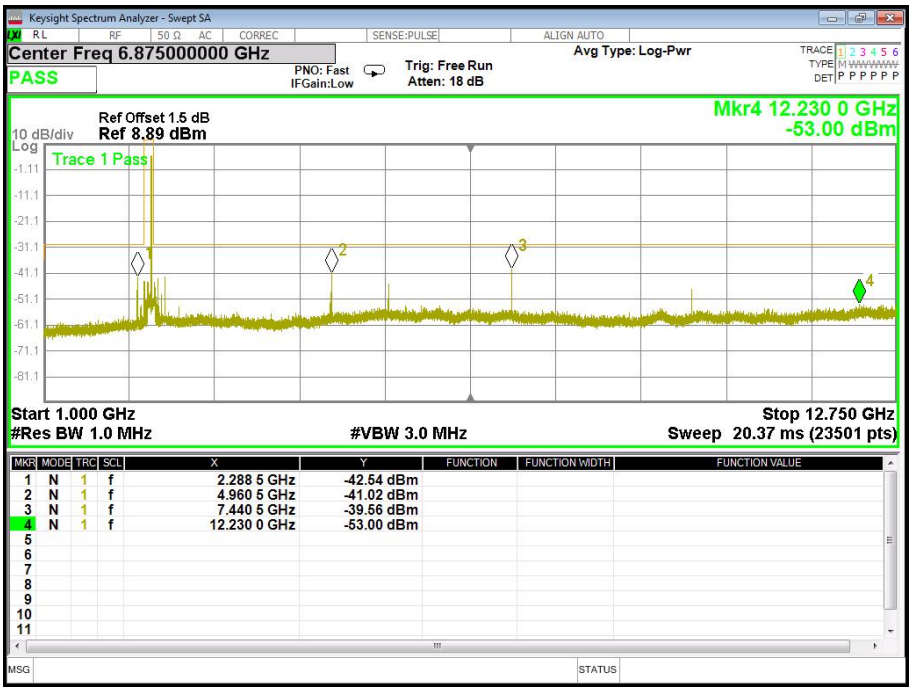
Horizontal

Vertical

TX 8DPSK/2480MHz

Horizontal

Vertical



9. SPURIOUS EMISSIONS – RECEIVER

9.1 LIMIT

Clause	Test Item	Frequency(MHz)	Limit
4.3.1.11.3	Spurious emissions	30-1000	-57dBm
	(radiated)	1000-12750	-47dBm

9.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.10.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.10.2 for the measurement method.

Spectrum Analyzer	Setting	
Frequency Start to Stop	30 MHz to 1000 MHz	1000 MHz to 12750MHz
Resolution bandwidth	100 kHz	1 MHz
Video bandwidth	300 kHz	3 MHz
Filter type	3 dB (Gaussian)	
Detector mode	Peak	
Trace Mode	Max Hold	
Sweep Points	≥ 19 400 (Set as 20000)	≥ 23 500 (Set as 24000)
Sweep Time	For non continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, Below 1GHz such that for each 100 kHz frequency step, Above 1GHz such that for each 1MHz frequency step the measurement time is greater than two transmissions of the UUT, on any channel	

a. The EUT was placed on the top of the turntable in Semi Anechoic Room.

b. The test shall be made in the receiving mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

c. For 30~1000MHz/1000~12750MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.

d. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).

e. Replace the EUT by standard antenna and feed the RF port by signal generator.

f. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.

g. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).

h. The level of the spurious emission is the power level of (7) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.

i. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.

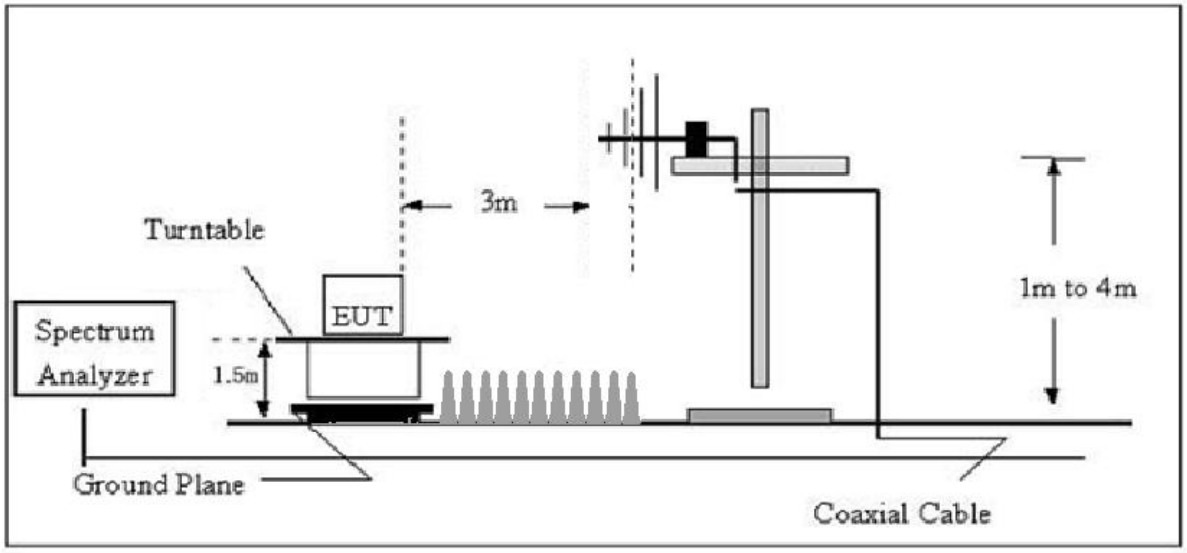
j. EUT Orthogonal Axis:©
"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand.

9.3 EUT OPERATION DURING TEST

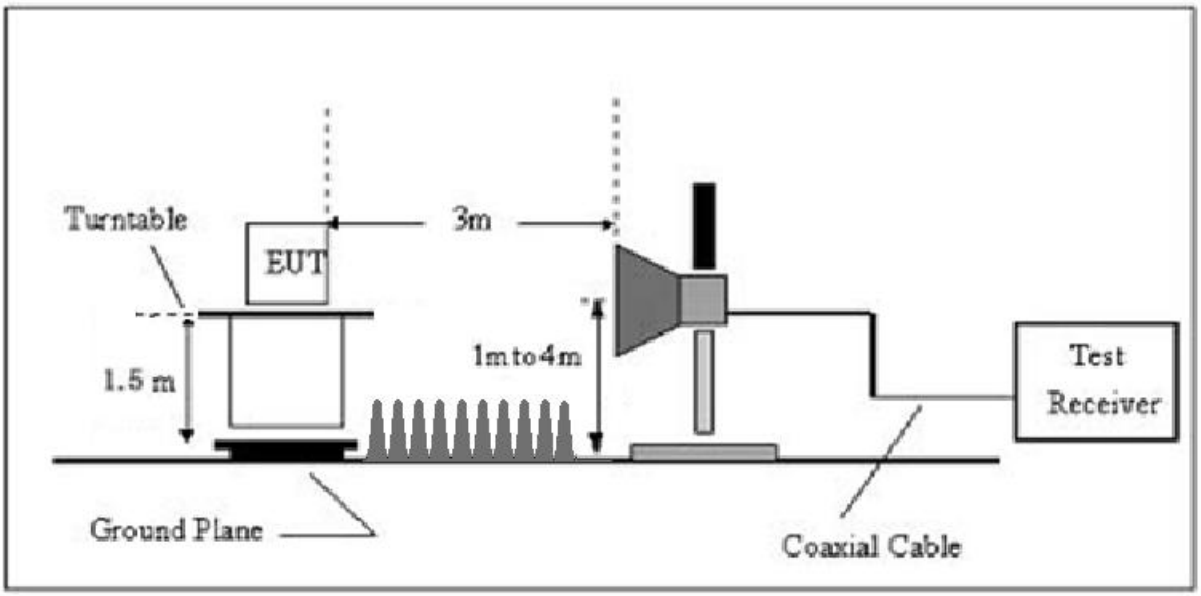
The EUT was programmed to be in continuously receiving mode.

9.4 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz

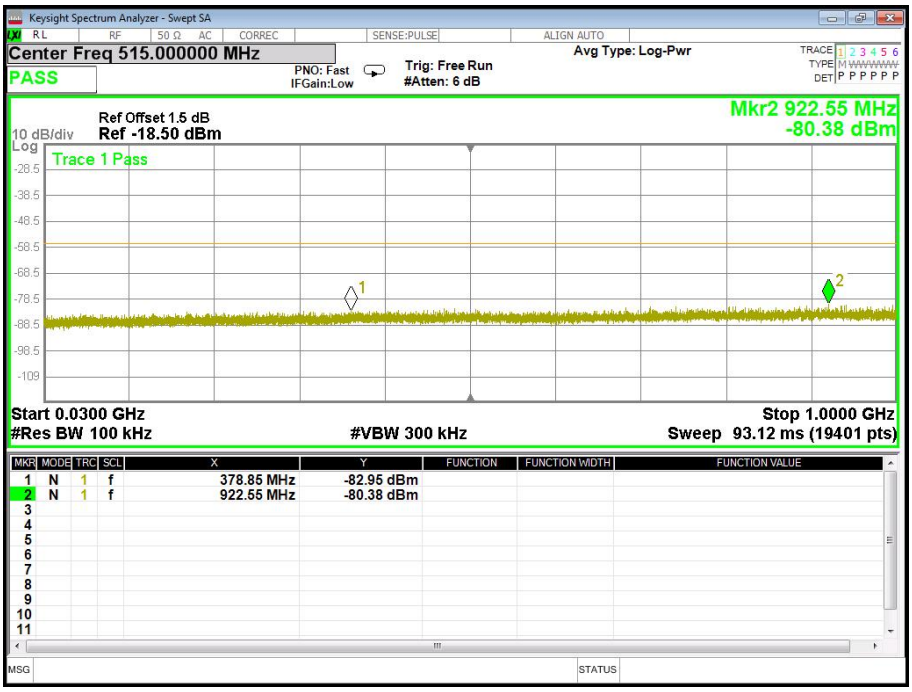


9.5 TEST RESULT

Remark: The all data rate modes had been test, but only worse test data was recorded in the test report.

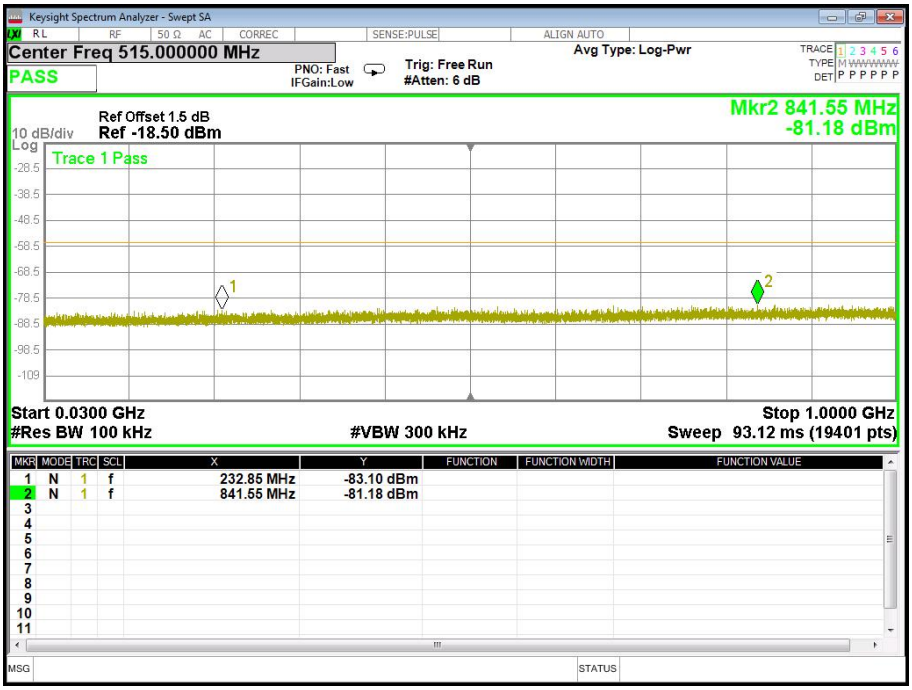
RX

RX 8DPSK/2402MHz Horizontal



RX 8DPSK/2402MHz Vertical

RX 8DPSK/2480MHz Horizontal



RX 8DPSK/2480MHz Vertical

10. RECEIVER BLOCKING

10.1 LIMIT

While maintaining the minimum performance criteria as defined in clause 4.3.1.12.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined for the applicable receiver category provided in table 6, table 7 or table 8.

Receiver Category 1

Table 6: Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Type of blocking Signal
Pmin + 6 dB	2 380 2 503,5	-53	CW
Pmin + 6 dB	2 300 2 330 2 360	-47	CW
Pmin + 6 dB	2 523,5 2 553,5 2 583,5 2 613,5 2 643,5 2 673,5	-47	CW
NOTE 1: Pmin is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

Receiver Category 2

Table 7: Receiver Blocking parameters for Receiver Category 2 equipment

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Type of blocking Signal
Pmin + 6 dB	2 380 2 503,5	-57	CW
Pmin + 6 dB	2 300 2 583,5	-47	CW
NOTE 1: Pmin is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

Receiver Category 3

Table 8: Receiver Blocking parameters for Receiver Category 3 equipment

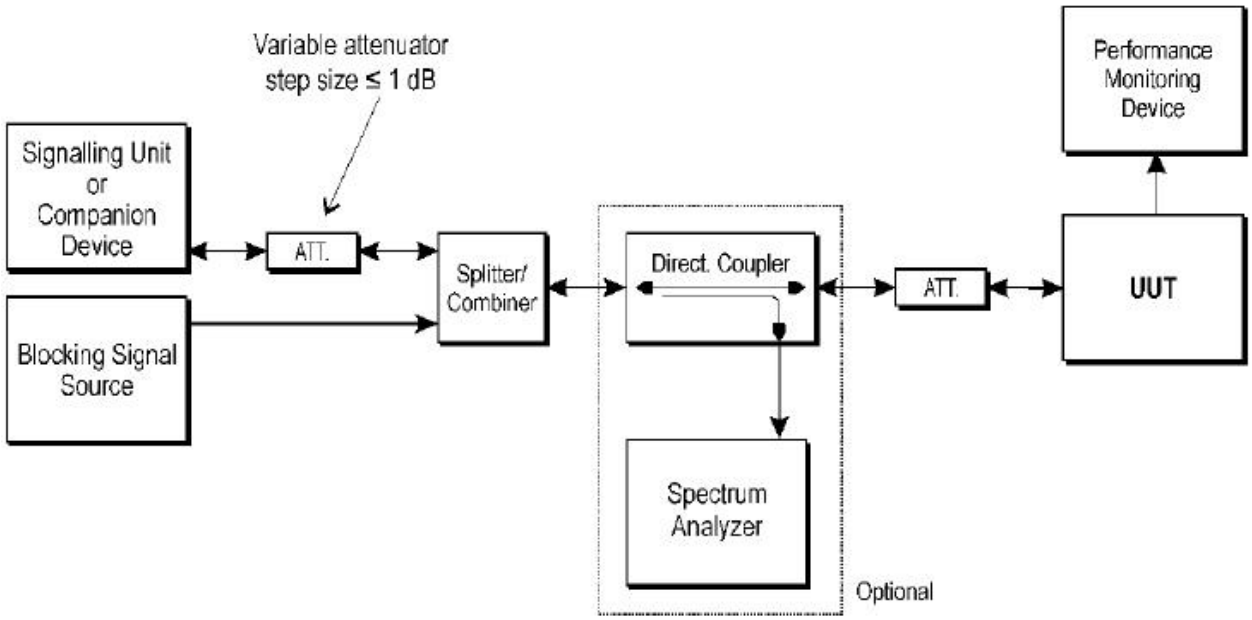
Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Type of blocking Signal
Pmin + 12 dB	2 380 2 503,5	-57	CW
Pmin + 12 dB	2 300 2 583,5	-47	CW
NOTE 1: Pmin is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined in clause 4.3.2.11.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the levels have to be corrected by the actual antenna assembly gain.			

10.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.11.2 for the measurement method.

- RBW: use next available RBW setting below the measured Occupied Channel Bandwidth Occupied Channel Bandwidth)
- Filter type: Channel Filter
- VBW: > RBW
- RBW:1M
  VBW:3M (Max 2M)
- Detector Mode: RMS
- Centre Frequency: Equal to the hopping frequency to be tested
- Span: 0 Hz
- Sweep time: > Channel Occupancy Time of the UUT. If the Channel Occupancy Time is non-contiguous (non-LBT based equipment), the sweep time shall be sufficient tocover the period over which the Channel Occupancy Time is spread out.
- Trace Mode: Clear/Write
- Trigger Mode: Video

10.3 TEST SETUP



10.4 TEST RESULT

Note: The power more than 0dBm, less than 10dBm, belong to category 2.

GFSK Hopping Worst

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power(dBm) CW	PER	Limit	Results
-65	2 380	-57	0.28%	≤10%	PASS
	2 503,5		0.35%		
	2 300	-47	0.18%		
	2 583,5		0.64%		
NOTE: (1)The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment (see clause 5.4.1.t). (2) Pmin=-71dBm					

11. ADAPTIVE (CHANNEL ACCESS MECHANISM)

11.1 LIMIT

The frequency range of the equipment is determined by the lowest and highest

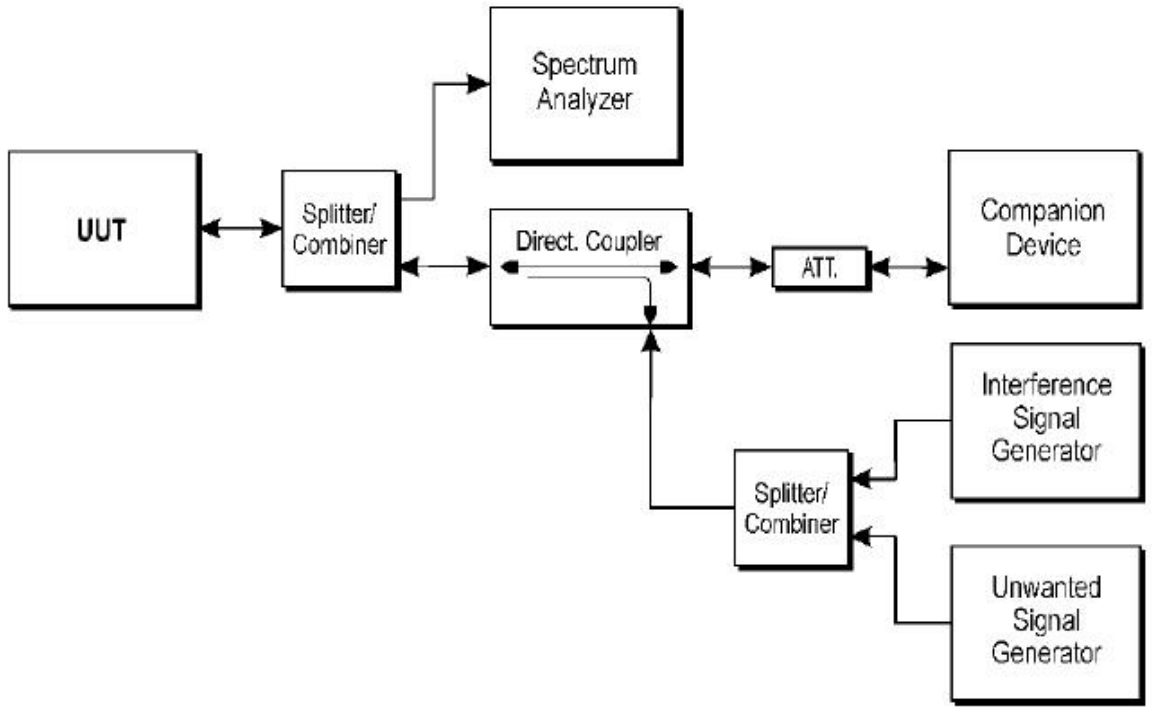
Adaptive Frequency Hopping using LBT based DAA: 1. COT≤60 ms; 2. Idle Period = 5% of COT; 3. Detection threshold level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p.)/1 MHz (Pout in dBm).
Adaptive Frequency Hopping using other forms of DAA (non-LBT based): 1.The frequency shall remain unavailable for a minimum time equal to 1 second or 5 times the actual number of hopping frequencies in the current (adapted) channel map used by the equipment 2. COT ≤40ms; 3. Idle Period = 5% of COT; 4. Detection threshold level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p.)/1 MHz (Pout in dBm).
Short Control Signalling Transmissions: Short Control Signalling Transmissions shall have a maximum duty cycle TxOn / (TxOn + TxOff) ratio of 10 % within any observation period of 50 ms.

11.2 TEST PROCEDURES

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.6.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.6.2 for the measurement method.
3. The spectrum analyzer sweep was triggered by the start of the interfering signal, with the interfering signal present, a 100 % duty cycle CW signal is inserted as the blocking signal.

- RBW: ≥ Occupied Channel Bandwidth (if the analyzer does not support this setting, the highest available setting shall be used)
- RBW: use next available RBW setting below the measured Occupied Channel Bandwidth
- Filter type: Channel Filter
- RBW:1M/VBW:3M
- Detector Mode: RMS
- Centre Frequency: Equal to the hopping frequency to be tested.
- Span: 0 Hz
- Sweep time: > Channel Occupancy Time of the UUT. If the Channel Occupancy Time is non-contiguous (non-LBT based equipment), the sweep time shall be sufficient to cover the period over which the Channel Occupancy Time is spread out
- Trace Mode: Clear/Write
- Trigger Mode: Video

11.3 TEST SETUP



a. BT is normal transmission
b. interference shall be injected ->BT shall stop transmission.
c. blocking shall be injected ->BT does not resume any normal transmission
d. Removing the interference and blocking signal

11.4 TEST RESULTS

Note: The power less than 10dBm, not apply.

※※※※END OF THE REPORT※※※※

RF TEST REPORT

Report No: FCS202604148W02

Issued for

Applicant::	Mid Ocean Brands B.V.
Address:	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Product Name:	Wireless Speaker
Brand Name:	N/A
Model Name:	MO2378
Series Model:	N/A
Test Standard:	ETSI EN 303 417 V1.1.1 (2017-09)

Issued By: Dongguan Funas Testing Technology Co.,Ltd
Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China
Tel: 0769-27280901 Fax:0769-27280901 http://www.fcs-lab.com
E-mail:andy.yue@fcs-lab.com

TEST REPORT CERTIFICATION

Applicant's Name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer's Name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.

Product Description

Product Name..... :	Wireless Speaker
Brand Name ..... :	N/A
Model Name..... :	MO2378
Series Model..... :	N/A
Test Standards..... :	ETSI EN 303 417 V1.1.1 (2017-09)

This device described above has been tested by FCS, and the test results show that the equipment under test (EUT) is in compliance with the 2014/53/EU RED Directive requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of FCS, this document may be altered or revised by FCS, personal only, and shall be noted in the revision of the document.

Date of Test..... :

Date (s) of performance of tests..... :	Apr 14, 2026~Apr 23, 2026
Date of Issue..... :	Apr 23, 2026
Test Result..... :	Pass

Tested by : orange OuYang

(orange OuYang)

Reviewed by : Jayden

((jayden)

Approved by : Jack Wang

(Jack Wang)

TABLE OF CONTENTS

Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	Apr 23, 2026	FCS202604148W02	N/A	Initial Issue

1. GENERAL INFORMATION

Product Name:	Wireless charger
Brand Name:	N/A
Model Name:	CWD-V07
Series Name:	See the first page of the report
Model Discrepancy:	PCB board, structure and internal of these model(s) are the same, only differing in Model name and color. So no additional models were tested
Power Rating:	Output power : 15W Max Input: DC 9V 3A, 5V 3A output: DC 5V 1A, 7.5V 1A, 9V 1.1A, 9V 1.67A
Frequency Range:	110kHz~205kHz
Modulation Technique:	Load modulation
Antenna gain:	0 dBi
Hardware version number:	V1.0
Software version number:	V1.0
Temperature Range:	10°C ~ 35°C

Channel List

Operational Mode	Channel	Frequency(KHz)
Mode 1	01	145.55
Mode 2	02	120.55
Mode 3/4	03	130.55

2. SETUP OF EQUIPMENT UNDER TEST

2.1 SETUP CONFIGURATION OF THE EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

2.2 TEST FACTORY

Company Name:	Dongguan Funas Testing Technology Co., Ltd.
Address:	Room 105, 1/F.. Baohao Technology Building 1, No.15, Gongye West Road.Songshan Lake Hi-Tech Industrial Area, Dongguan, Guangdong, China
Telephone:	+86-0769-27280901
Fax:	+86-0769-27280901
FCC Test Firm Registration Number: 514908 CNAS Number： L15566 Designation number：CN0127 A2LA accreditation number：5545.01 ISED Number：25801	

2.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended 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	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated below 1GHz	±2.26dB
4	All emissions, radiated 1GHz-18GHz	±2dB
5	All emissions, radiated>18G	±2.88dB

2.4 EQUIPMENTS LIST

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2025.08.25	2026.08.24
Signal Analyzer	R&S	FSV40-N	FCS-E012	2025.08.25	2026.08.24
Loop Antenna	HTC	Loop Antenna	FCS-E030	2025.08.25	2026.08.24
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2025.08.25	2026.08.24
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2025.08.25	2026.08.24
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2025.08.25	2026.08.24
Pre-Amplifier(0.1M-3GHz)	EMCI	EM330N	FCS-E004	2025.08.25	2026.08.24
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2025.08.25	2026.08.24
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2025.08.25	2026.08.24
Temperature & Humidity	HTC-1	victor	FCS-E005	2025.08.25	2026.08.24

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2025.08.25	2026.08.24
LISN	R&S	ENV216	FCS-E007	2025.08.25	2026.08.24
LISN	ETS	3810/2NM	FCS-E009	2025.08.25	2026.08.24
Temperature & Humidity	HTC-1	victor	FCS-E008	2025.08.25	2026.08.24

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2025.08.25	2026.08.24
Spectrum Analyzer	Agilent	E4447A	MY50180039	2025.08.25	2026.08.24
Spectrum Analyzer	R&S	FSV-40	101499	2025.08.25	2026.08.24

NOTE: Equipments listed above have been calibrated and are in the period of validation.

2.5 TEST SUMMARY

Test Item	Test Mode	Applicable(Y/N)	Result
Permitted range of operating frequencies	declare	Y	PASS
Operating frequency ranges	Mode 1/2/3/4	Y	PASS
Transmitter H-field requirements	Mode 1/2/3/4	Y	PASS
Transmitter spurious emissions	Mode 1/2/3/4	Y	PASS
Transmitter out of band (OOB) emissions	Mode 1/2/3/4	Y	PASS
WPT system unwanted conducted emissions	Mode 1/2/3/4	Y	PASS
Receiver blocking	Mode 1/2/3	Y	PASS
RF Exposure	Mode 1/2/3/4	Y	PASS

Remark:

N/A: Not Applicable
RF: In this whole report RF means Radio Frequency.
The manufacture declare the test mode is mode 1, mode 2, mode 3, mode 4.
Mode 3 and Mode 4 are tested together.
For Transmitter spurious emissions test items:"Operating" means mode 2, 3 and 4; "standby" means mode 1.

Operational Mode	Set-up	Function of base station	Function of mobile device
Mode 1: base station in stand-by, idle mode	Single device	Transmitter	Not applicable
Mode 2: Communication before charging, adjustment charging mode / position	In combination	TX and RX	TX and RX
Mode 3: Communication	WPT system alignment	TX and RX	TX and RX
Mode 4: energy transmission	WPT system alignment	TX and RX	TX and RX

3. TEST METHODOLOGY

3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT has been tested according to ETSI EN 303 417 V1.1.1 (2017-09)

ETSI EN 303 417 V1.1.1 (2017-09)	Wireless power transmission systems, using technologies other than radio frequency beam in the 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6 765 - 6 795 kHz ranges; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

3.2 TEST MODES

The EUT has been tested under normal operating condition. Control the EUT for staying in continuous transmitting for testing.
The field strength of spurious radiation emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The following data show only with the worst case setup. The worst case of Y axis without cradle was reported.

3.3 TEST CONDITIONS

During the measurement the environmental conditions were within the listed ranges:
- Temperature: 15-35ºC
- Humidity: 20-75 %
- Atmospheric pressure: 86-106 kPa

1). Mains voltage

The extreme test voltage for equipment to be connected to an AC mains source shall be the nominal mains voltage±10 %.

2). Lead-acid battery power sources used on vehicles

When radio equipment is intended for operation from the usual type of alternator fed lead-acid battery power source used on vehicles, then extreme test voltage shall be 1,3 and 0,9 times the nominal voltage of the battery (5 V, 9 V, etc.).

3). Power sources using other types of batteries

The Low extreme test voltages for equipment with power sources using the following types of battery shall be:
• for the Leclanché or lithium type battery: 0,85 times the nominal voltage of the battery;
• for the mercury or nickel-cadmium type of battery: 0,9 times the nominal voltage of the battery.
In both cases, the High extreme test voltage shall be 1,15 times the nominal voltage of the battery.

4). Other power sources

For equipment using other power sources, or capable of being operated from a variety of power sources (primary or secondary), the extreme test voltages shall be those stated by the manufacturer and shall be recorded.

The follow condition is applicable

Test Conditions	Normal	LTLV	LTHV	HTHV	HTLV
Temperature (℃)	22	10	10	35	35
Voltage (VDC)	24	23	25	25	23

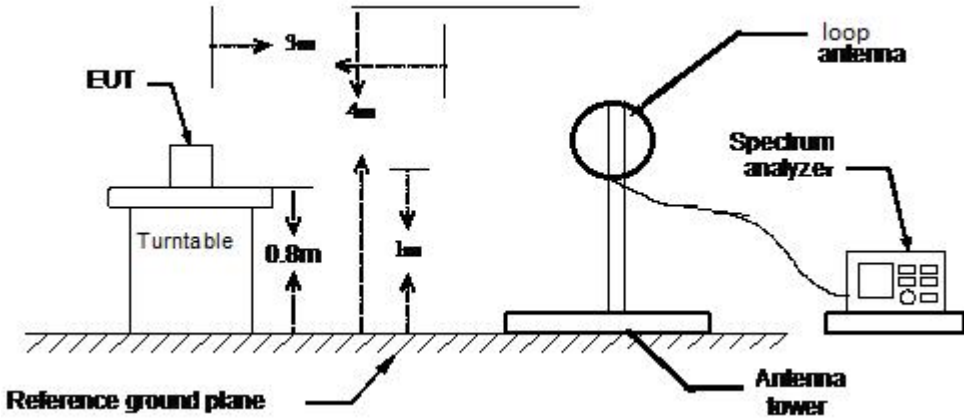
4. PERMITTED RANGE OF OPERATING FREQUENCIES

4.1 LIMIT

The permitted range of operating frequencies used by the EUT shall be declared by the manufacturer. The permitted range of operating frequencies for intentional emissions shall be entirely within the frequency bands in below table.

Table 1			
	WPT frequency range	Frequency Bands	Applications
Transmit and Receive	1	19 kHz to 21 kHz	WPT systems
Transmit and Receive	2	59 kHz to 61 kHz	WPT systems
Transmit and Receive	3	79 kHz to 90 kHz	WPT systems
Transmit and Receive	4	100 kHz to 119 kHz	WPT systems
Transmit and Receive		119 kHz to 140 kHz	WPT systems
Transmit and Receive		140 kHz to 148,5 kHz	WPT systems
Transmit and Receive		148,5 kHz to 300 kHz	WPT systems
Transmit and Receive	5	6 765 kHz to 6 795 kHz	WPT systems

4.2 TEST CONFIGURATION



4.3 TEST RESULTS

Mode 1

Test Conditions		Frequency Range			
		fL (KHz)	fH (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		143.5500	147.5500	100	300
Extreme	LTLV	143.5600	147.5500	100	300
	LTHV	143.5300	147.5400	100	300
	HTLT	143.5300	147.5300	100	300
	HTHV	143.5200	147.5500	100	300

Mode 2

Test Conditions		Frequency Range			
		fL Low Channel (KHz)	fH High Channel (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		118.5700	125.5300	100	300
Extreme	LTLV	118.5700	125.5400	100	300
	LTHV	118.5800	125.5500	100	300
	HTLT	118.5500	124.5600	100	300
	HTHV	118.5600	125.5200	100	300

Mode 3/4

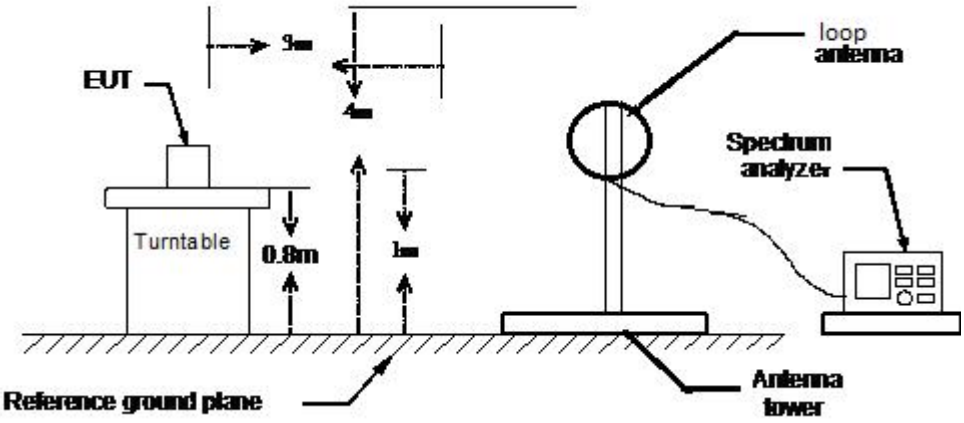
Test Conditions		Frequency Range			
		fL Low Channel (KHz)	fH High Channel (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		120.5500	132.5000	100	300
Extreme	LTLV	120.5600	132.5500	100	300
	LTHV	120.4800	132.5500	100	300
	HTLT	120.4900	132.5500	100	300
	HTHV	120.5000	133.5500	100	300

5. OPERATING FREQUENCY RANGES

5.1 LIMIT

The operating frequency ranges for intentional emissions shall be entirely within the frequency bands in table 1

5.2 TEST CONFIGURATION



5.3 TEST PROCEDURE

1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.2 for the measurement method.

5.4 TEST RESULTS

Mode 1

Test Conditions		Frequency Range			
		fL (KHz)	fH (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		143.5500	147.5400	100	300
Extreme	LTLV	143.5600	147.5200	100	300
	LTHV	143.5400	147.5400	100	300
	HTLT	143.5400	147.5800	100	300
	HTHV	143.5100	147.5100	100	300

Mode 2

Test Conditions		Frequency Range			
		fL Low Channel (KHz)	fH High Channel (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		118.6500	123.1700	100	300
Extreme	LTLV	118.7100	123.1800	100	300
	LTHV	118.7800	123.1800	100	300
	HTLT	118.6000	123.1900	100	300
	HTHV	118.6900	123.1600	100	300

Mode 3/4

Test Conditions		Frequency Range			
		fL Low Channel (KHz)	fH High Channel (KHz)	fL Limit (KHz)	fH Limit (KHz)
Normal		128.4400	132.5500	100	300
Extreme	LTLV	128.4500	132.5800	100	300
	LTHV	128.4500	132.6100	100	300
	HTLT	128.4300	132.5300	100	300
	HTHV	128.4900	132.5300	100	300

6. H-FIELD REQUIREMENTS

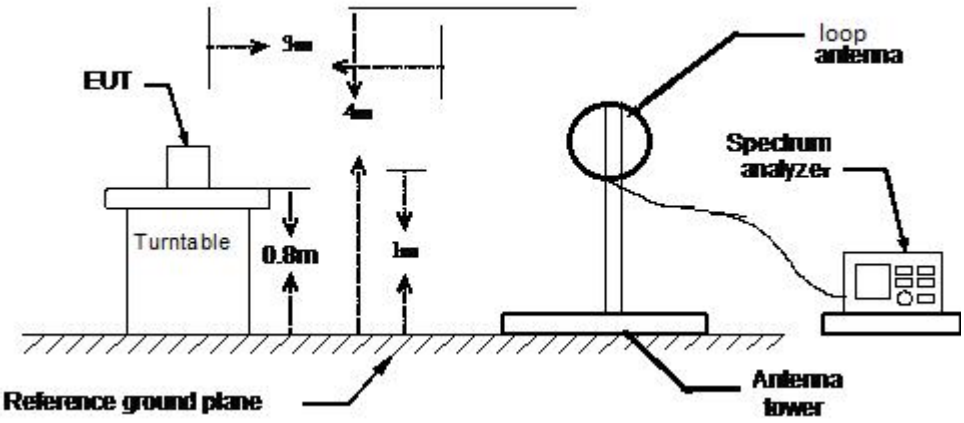
6.1 LIMIT

Table 3: H-field limits

Frequency range [MHz]	H-field strength limit [dBµA/m at 10 m]	Comments
0,019 ≤ f < 0,021	72	
0,059 ≤ f < 0,061	69,1 descending 10 dB/dec above 0,059 MHz	See note 1
0,079 ≤ f < 0,090	67,8 descending 10 dB/dec above 0,079 MHz	See note 2
0,100 ≤ f < 0,119	42	
0,119 ≤ f < 0,135	66 descending 10 dB/dec above 0,119 MHz	See note 1
0,135 ≤ f < 0,140	42	
0,140 ≤ f < 0,1485	37,7	
0,1485 ≤ f < 0,30	-5	
6,765 ≤ f < 6,795	42	

NOTE 1: Limit is 42 dBµA/m for the following spot frequencies: 60 kHz ± 250 Hz and 129,1 kHz ± 500 Hz.
NOTE 2: At the time of preparation of the present document the feasibility of increased limits for high power wireless power transmission systems to charge vehicles [i.4] was prepared. New specific requirements for such systems (e.g. higher H-field emission limits in the 79 - 90 kHz band) will be reflected within a future revision of the present document.

6.2 TEST CONFIGURATION



6.3 TEST PROCEDURE

1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.2 for the measurement method.

6.4 TEST RESULTS

Mode 1

Frequency (KHz)	Reading (dBμA)	Corrected Factor (dB)	Corrected Amplitude E-field (dBμV/m)	Corrected Amplitude H-field_3m (dBμA/m)	Corrected Amplitude H-field_10m (dBμA/m)	Limit_10m (dBμA/m)	Margin (dB)	Result
145.55	62.163	5.25	118.913	67.413	36.213	37.7	-1.49	Pass

Mode 2

Frequency (KHz)	Reading (dBμA)	Corrected Factor (dB)	Corrected Amplitude E-field (dBμV/m)	Corrected Amplitude H-field_3m (dBμA/m)	Corrected Amplitude H-field_10m (dBμA/m)	Limit_10m (dBμA/m)	Margin (dB)	Result
120.50	43.179	5.25	99.929	48.429	17.229	66.049	-48.82	Pass
122.85	42.059	5.25	98.809	47.309	16.109	66.138	-50.02	Pass

Mode 3/4

Frequency (KHz)	Reading (dBμA)	Corrected Factor (dB)	Corrected Amplitude E-field (dBμV/m)	Corrected Amplitude H-field_3m (dBμA/m)	Corrected Amplitude H-field_10m (dBμA/m)	Limit_10m (dBμA/m)	Margin (dB)	Result
122.30	26.212	5.25	82.962	31.462	0.262	66.119	-65.85	Pass
130.55	29.508	5.25	86.258	34.758	3.558	66.406	-62.84	Pass

7. TRANSMITTER SPURIOUS EMISSIONS

7.1 LIMIT

Limit below 30MHz

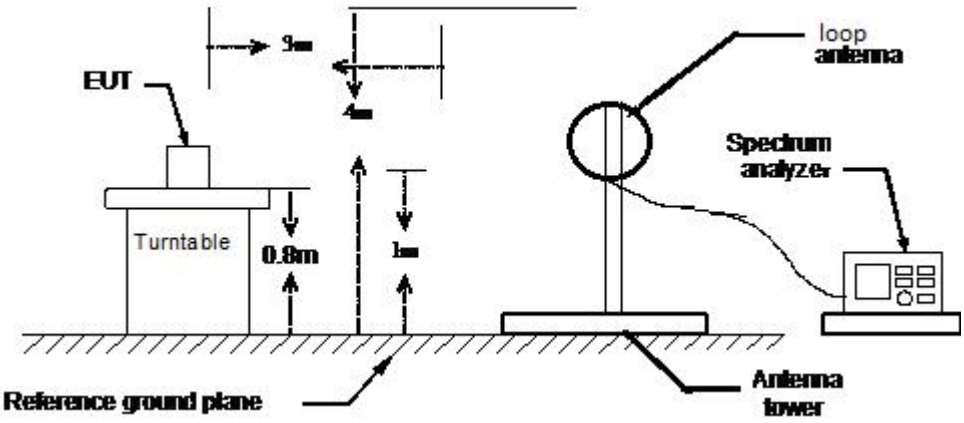
State	Frequency 9 kHz ≤ f < 10 MHz	Frequency 10 MHz ≤ f < 30 MHz
Operating	27 dBµA/m at 9 kHz descending 10 dB/oct	-3,5 dBµA/m
Standby	5,5 dBµA/m at 9 kHz descending 10 dB/oct	-25 dBµA/m

Limit above 30MHz

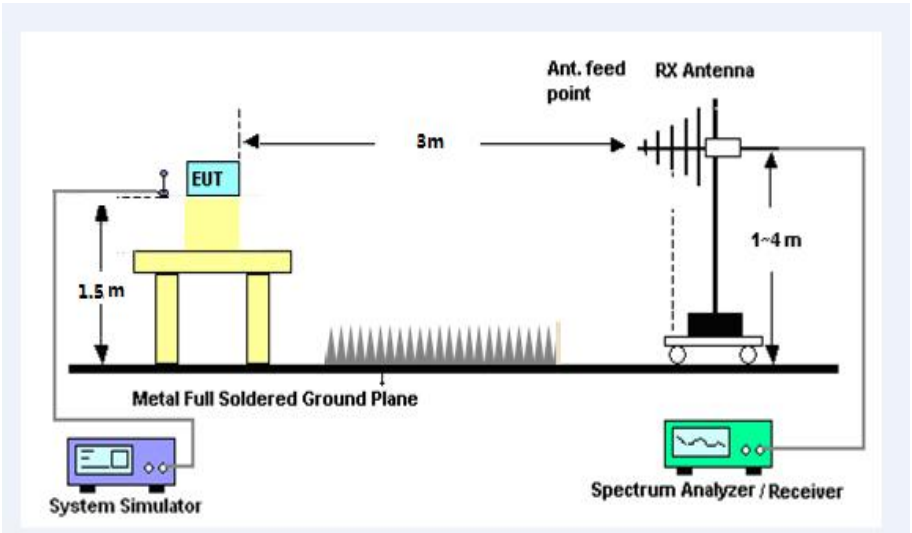
State	47 MHz to 74 MHz 87,5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other frequencies between 30 MHz to 1000 MHz
Operating	4nW(-54dBm)	250nW(-36dBm)
Standby	2nW(-57dBm)	2nW(-57dBm)

7.2 TEST CONFIGURATION

Below 30MHz



30MHz-1GHz



7.3 TEST PROCEDURE

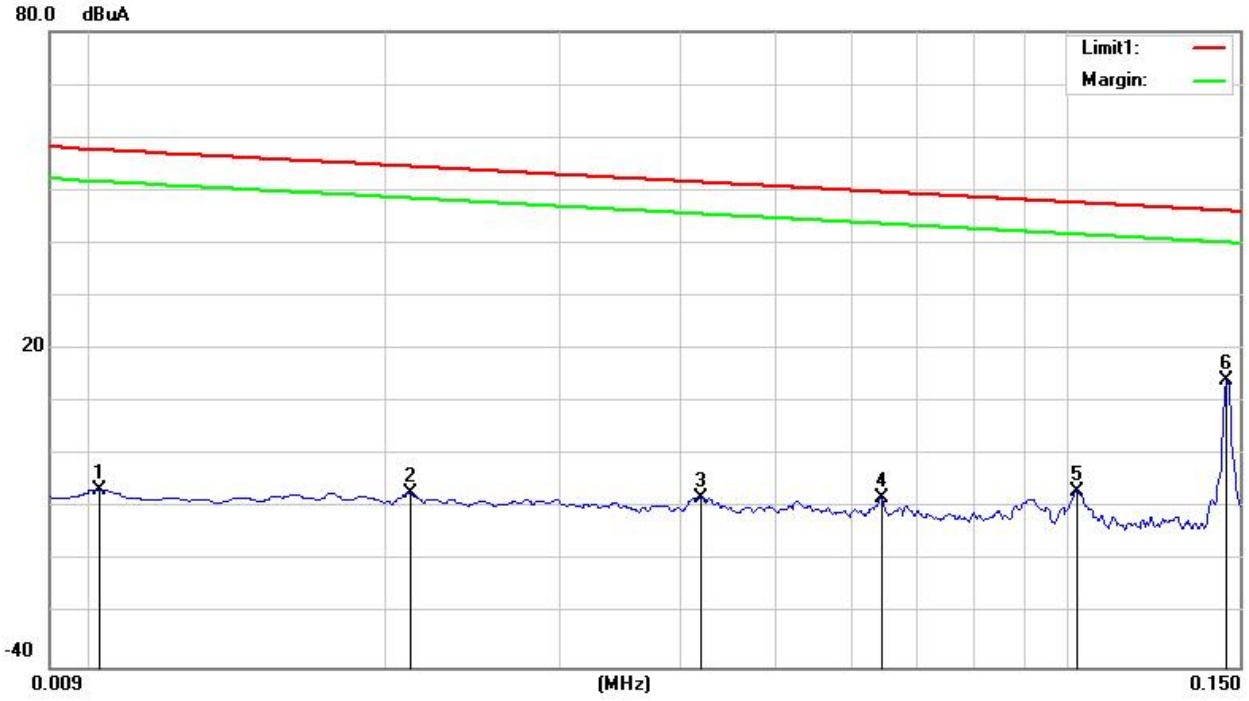
1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.2 for the measurement method.

7.4 TEST RESULT

Note: The test report only show the worst case.

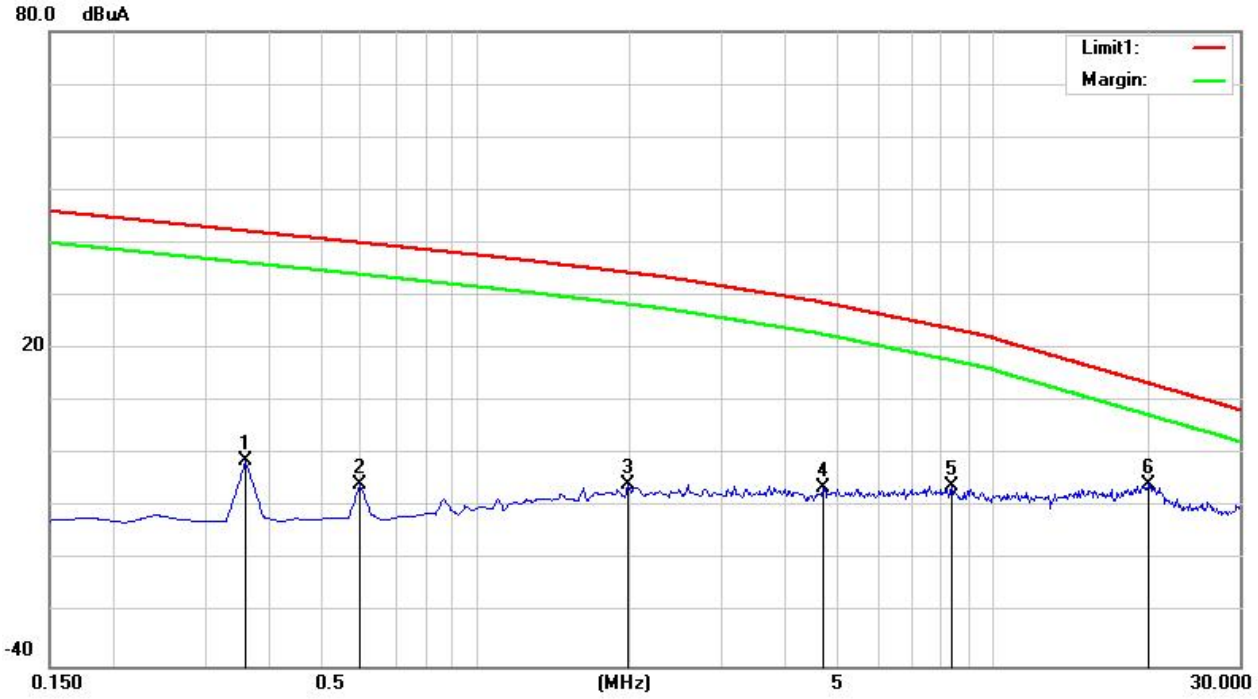
Operating mode

Mode 2
9KHz – 150KHz



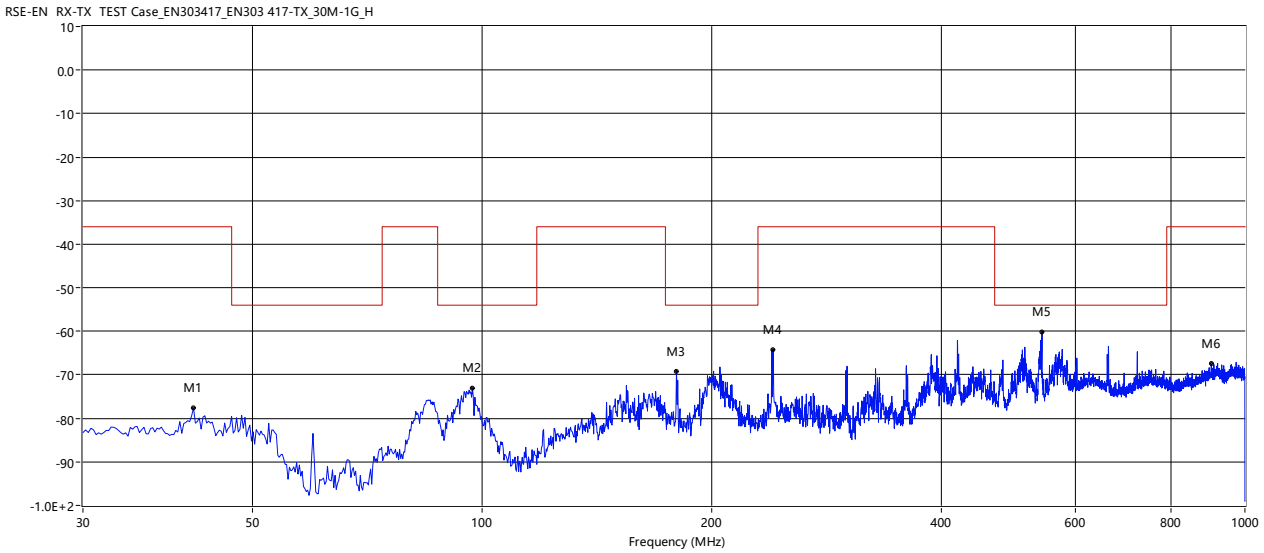
No.	Frequency (KHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.0101	-25.92	19.38	-6.54	57.70	-64.24	peak
2	0.0211	-27.33	20.08	-7.25	54.51	-61.76	peak
3	0.0418	-27.57	19.66	-7.91	51.55	-59.46	peak
4	0.0643	-27.03	19.10	-7.93	49.69	-57.62	peak
5	0.1022	-24.45	17.60	-6.85	47.68	-54.53	peak
6	0.1453	-3.22	17.51	14.29	46.16	-31.87	peak

150KHz – 30MHz



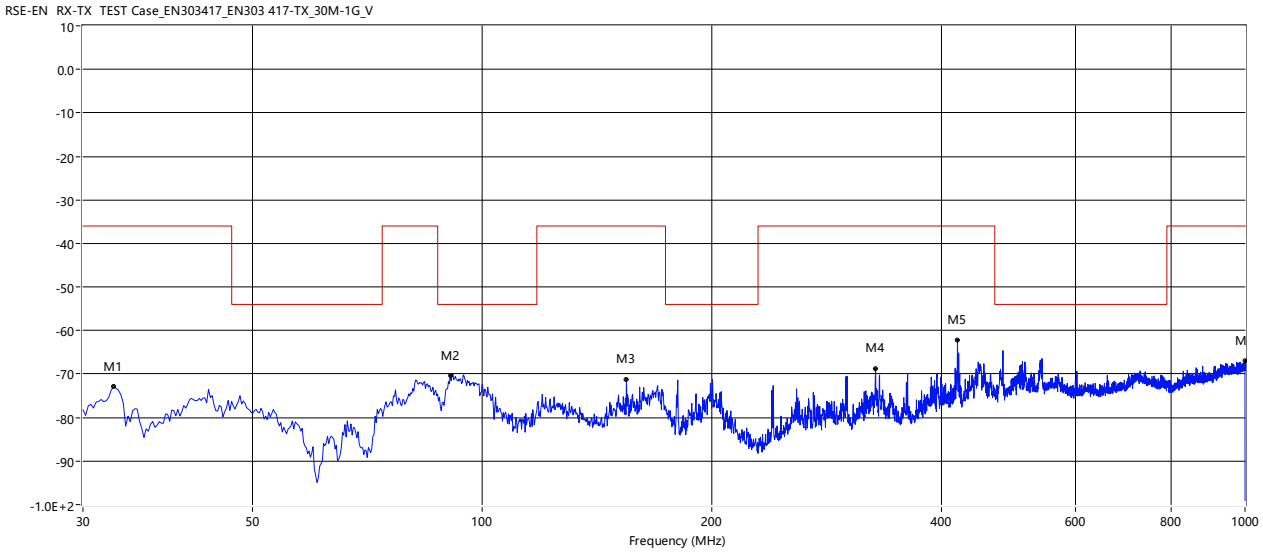
No.	Frequency (MHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.3590	-21.42	20.14	-1.28	42.25	-43.53	peak
2	0.5978	-25.79	20.24	-5.55	40.03	-45.58	peak
3	1.9708	-26.04	20.39	-5.65	34.39	-40.04	peak
4	4.7171	-26.84	20.47	-6.37	28.70	-35.07	peak
5	8.3290	-26.29	20.30	-5.99	23.78	-29.77	peak
6	20.0003	-28.26	22.50	-5.76	13.48	-19.24	peak

30MHz -1GHz
Horizontal



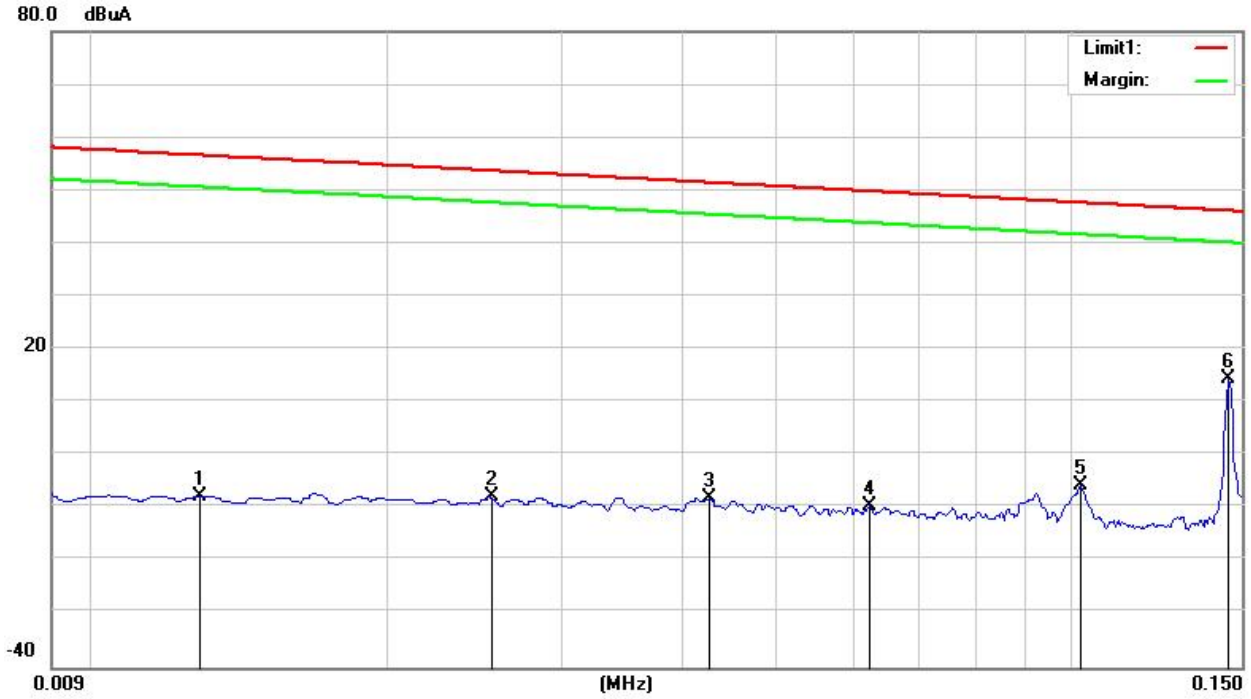
Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
41.883	-77.62	-5.65	-36.0	-41.62	84.60	Horizontal	Vertical	Pass
97.173	-73.17	-13.98	-54.0	-19.17	64.50	Horizontal	Vertical	Pass
179.865	-69.27	-10.62	-54.0	-15.27	165.70	Horizontal	Vertical	Pass
240.732	-64.16	-1.98	-36.0	-28.16	302.90	Horizontal	Vertical	Pass
541.918	-60.23	2.92	-54.0	-6.23	256.40	Horizontal	Vertical	Pass
903.485	-67.47	8.96	-36.0	-31.47	111.30	Horizontal	Vertical	Pass

Vertical



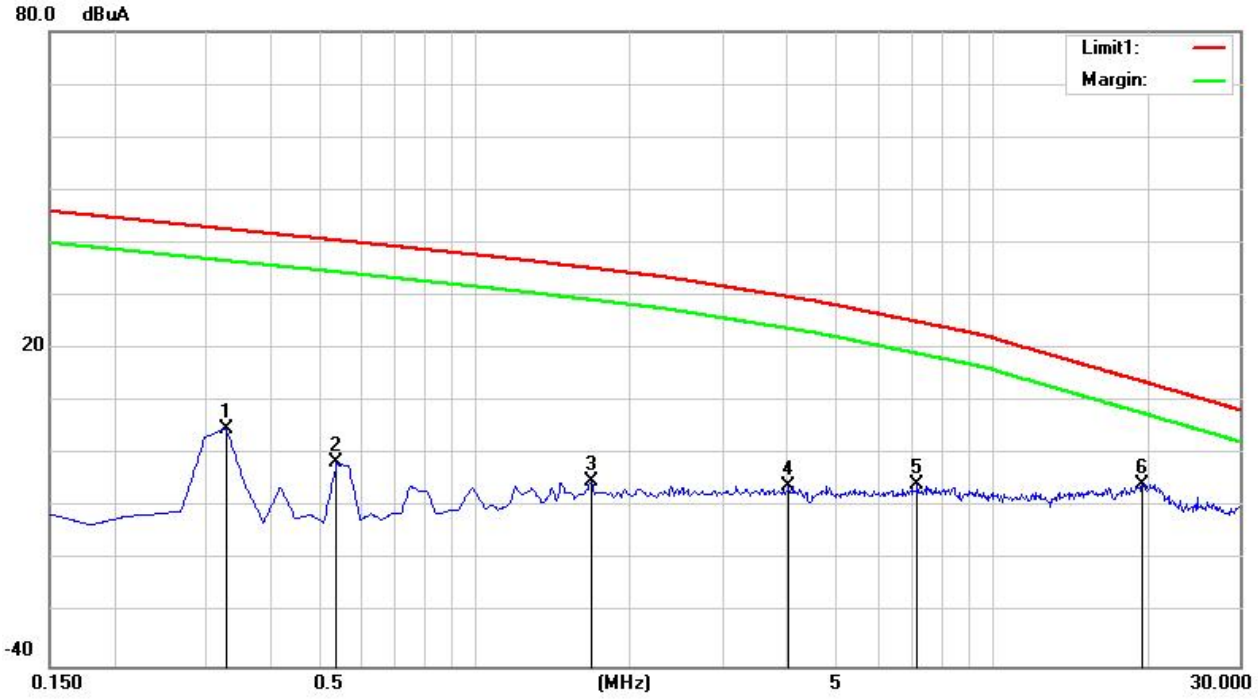
Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
32.910	-72.93	-8.00	-36.0	-36.93	346.20	Vertical	Vertical	Pass
90.868	-70.27	-9.49	-54.0	-16.27	192.20	Vertical	Vertical	Pass
154.645	-71.16	-3.52	-36.0	-35.16	322.80	Vertical	Vertical	Pass
328.033	-68.66	-2.33	-36.0	-32.66	178.80	Vertical	Vertical	Pass
419.940	-62.12	1.26	-36.0	-26.12	45.20	Vertical	Vertical	Pass
999.030	-66.99	10.64	-36.0	-30.99	255.50	Vertical	Vertical	Pass

Mode 3/4
9KHz – 150KHz



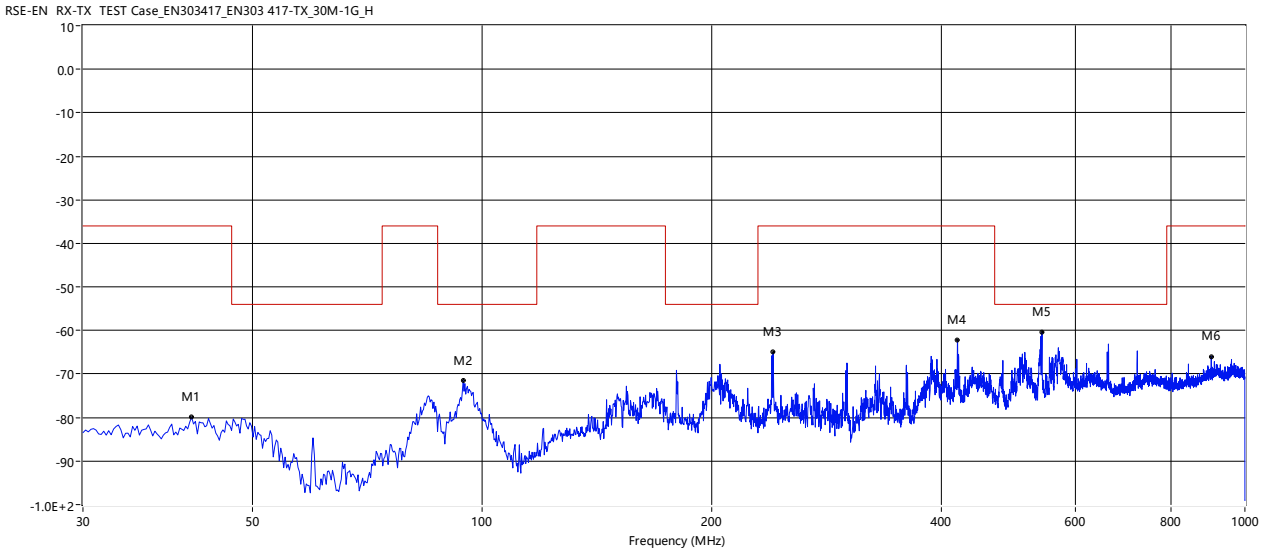
No.	Frequency (KHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.0128	-27.25	19.58	-7.67	56.68	-64.35	peak
2	0.0253	-27.87	19.99	-7.88	53.73	-61.61	peak
3	0.0427	-27.79	19.65	-8.14	51.46	-59.60	peak
4	0.0623	-28.75	19.16	-9.59	49.83	-59.42	peak
5	0.1024	-23.37	17.60	-5.77	47.68	-53.45	peak
6	0.1453	-3.12	17.51	14.39	46.16	-31.77	peak

150KHz – 30MHz



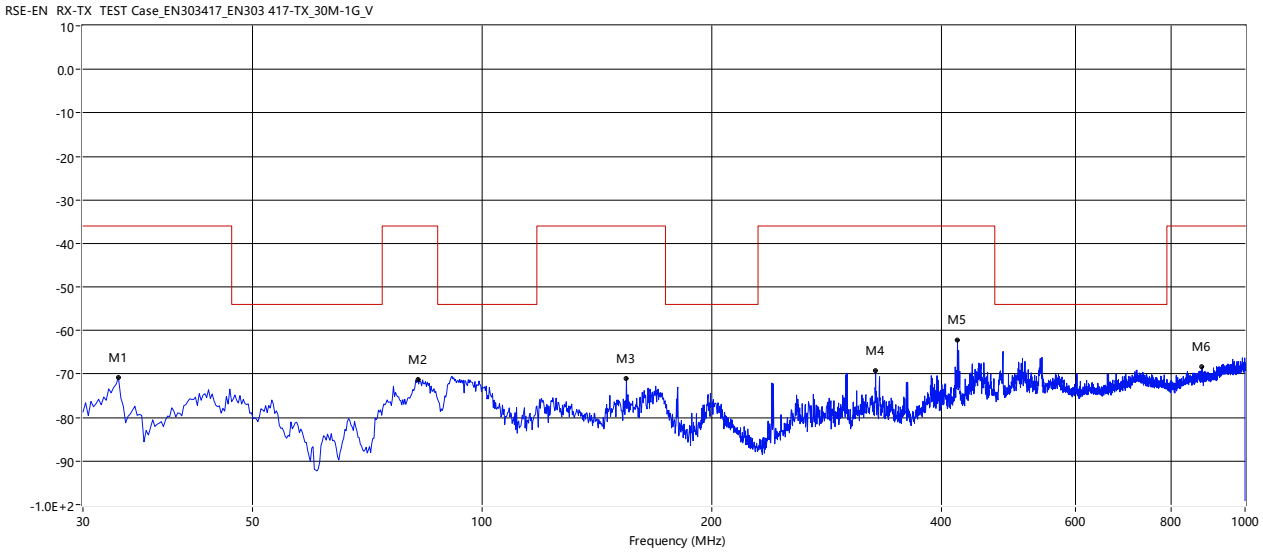
No.	Frequency (MHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.3291	-15.16	20.13	4.97	42.62	-37.65	peak
2	0.5381	-21.78	20.22	-1.56	40.49	-42.05	peak
3	1.6724	-25.24	20.33	-4.91	35.22	-40.13	peak
4	4.0305	-26.28	20.40	-5.88	29.81	-35.69	peak
5	7.1647	-26.11	20.37	-5.74	25.08	-30.82	peak
6	19.4928	-27.93	22.38	-5.55	13.80	-19.35	peak

30MHz -1GHz
Horizontal



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
41.640	-79.90	-5.47	-36.0	-43.90	36.20	Horizontal	Vertical	Pass
94.505	-71.51	-14.26	-54.0	-17.51	56.30	Horizontal	Vertical	Pass
240.732	-64.98	-1.98	-36.0	-28.98	106.90	Horizontal	Vertical	Pass
419.940	-62.15	2.23	-36.0	-26.15	319.40	Horizontal	Vertical	Pass
541.918	-60.34	2.92	-54.0	-6.34	137.40	Horizontal	Vertical	Pass
903.485	-65.94	8.96	-36.0	-29.94	110.60	Horizontal	Vertical	Pass

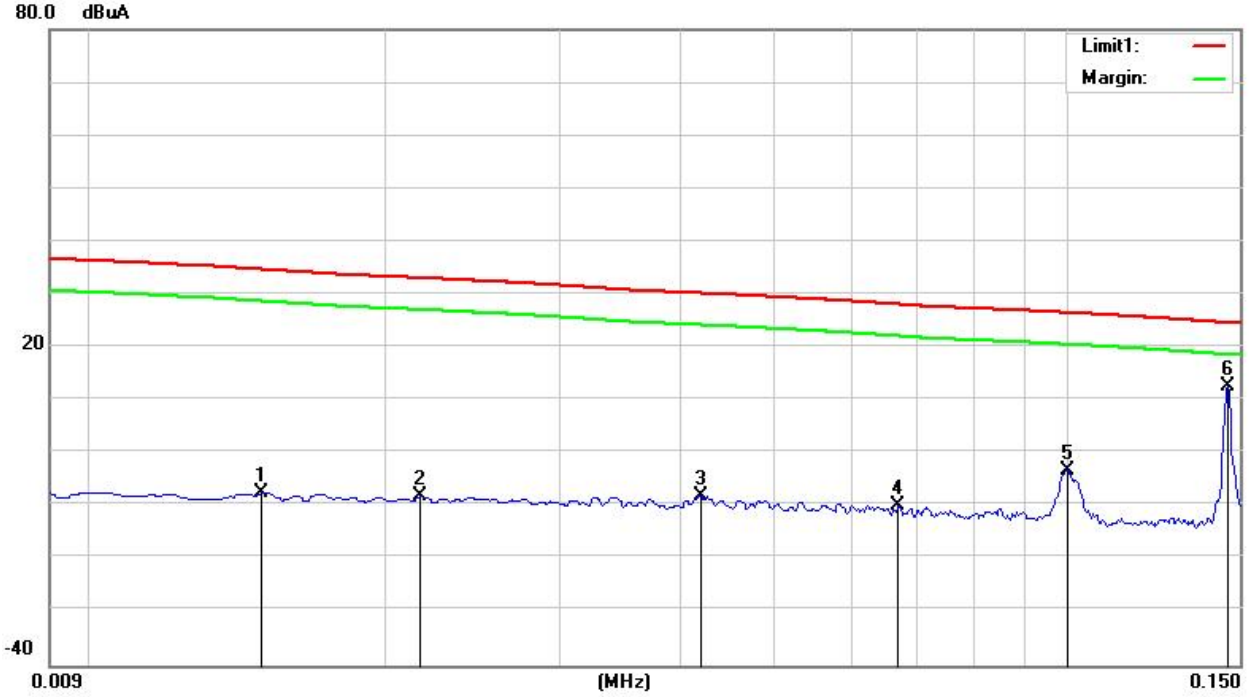
Vertical



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
33.395	-70.84	-8.31	-36.0	-34.84	357.40	Vertical	Vertical	Pass
82.380	-71.23	-13.74	-36.0	-35.23	360.00	Vertical	Vertical	Pass
154.645	-71.05	-3.52	-36.0	-35.05	321.20	Vertical	Vertical	Pass
328.033	-69.25	-2.33	-36.0	-33.25	317.80	Vertical	Vertical	Pass
419.940	-62.31	1.26	-36.0	-26.31	51.40	Vertical	Vertical	Pass
878.265	-68.33	8.24	-36.0	-32.33	277.30	Vertical	Vertical	Pass

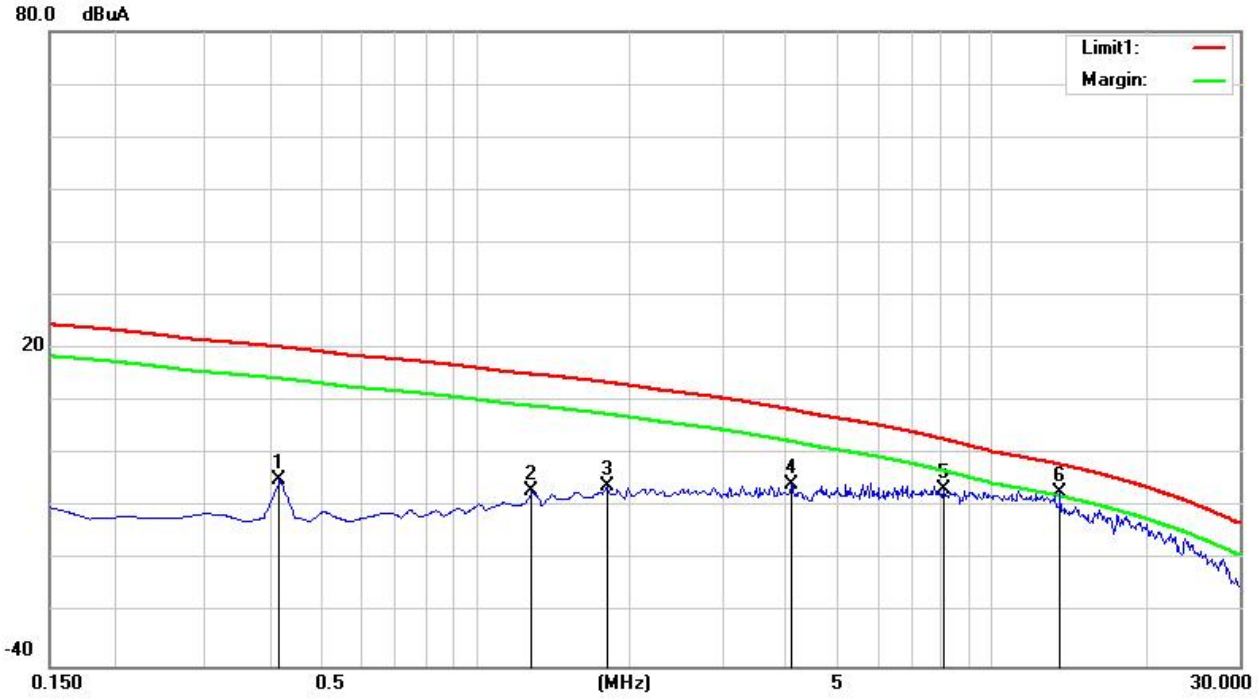
Standby mode

Mode 1
9KHz – 150KHz



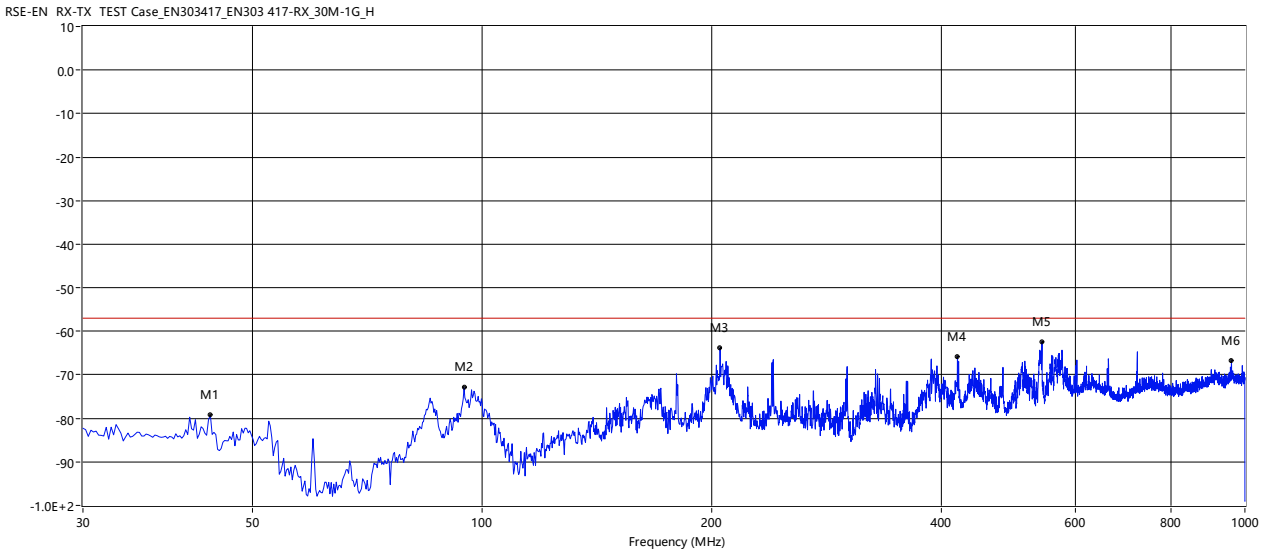
No.	Frequency (KHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.0150	-27.28	19.74	-7.54	34.70	-42.24	peak
2	0.0216	-28.26	20.07	-8.19	33.10	-41.29	peak
3	0.0418	-27.67	19.66	-8.01	30.22	-38.23	peak
4	0.0670	-28.96	19.02	-9.94	28.12	-38.06	peak
5	0.1000	-20.85	17.60	-3.25	26.53	-29.78	peak
6	0.1460	-4.88	17.51	12.63	24.66	-12.03	peak

150KHz – 30MHz



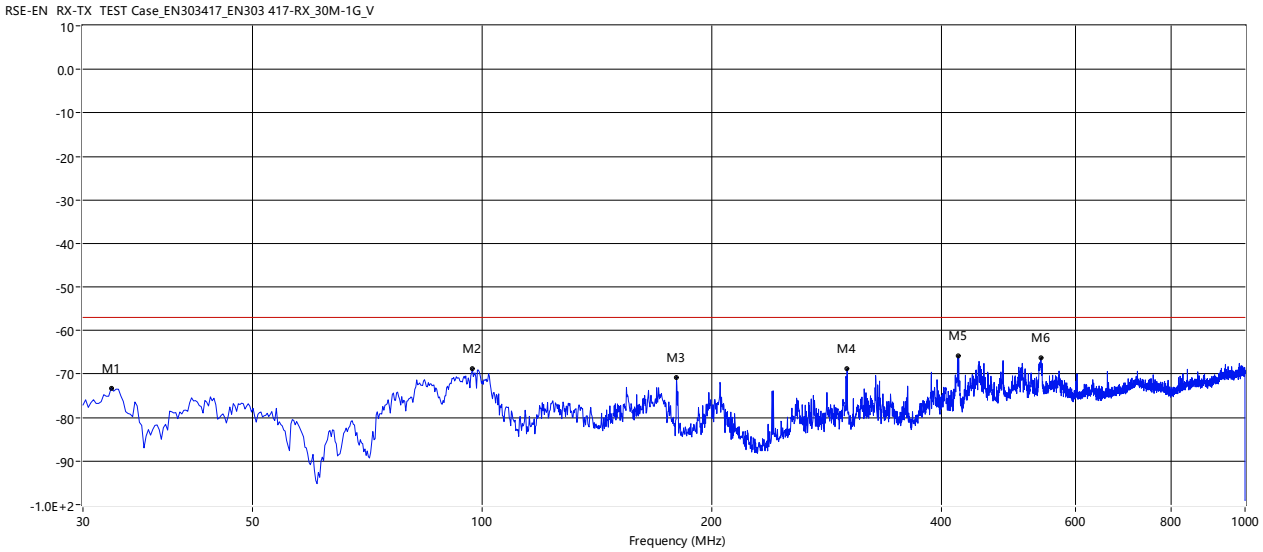
No.	Frequency (MHz)	Reading (dBuA)	Correct Factor(dB)	Result (dBuA)	Limit (dBuA)	Margin (dB)	Remark
1	0.4187	-25.03	20.17	-4.86	20.34	-25.20	peak
2	1.2843	-27.21	20.26	-6.95	15.20	-22.15	peak
3	1.7917	-26.28	20.36	-5.92	13.66	-19.58	peak
4	4.0901	-26.07	20.41	-5.66	8.46	-14.12	peak
5	8.0304	-26.97	20.32	-6.65	2.94	-9.59	peak
6	13.5228	-28.23	20.98	-7.25	-1.88	-5.37	peak

30MHz -1GHz
Horizontal



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
44.065	-79.28	-7.28	-57.0	-22.28	89.90	Horizontal	Vertical	Pass
94.747	-72.95	-14.23	-57.0	-15.95	86.60	Horizontal	Vertical	Pass
205.085	-63.80	-11.09	-57.0	-6.80	26.30	Horizontal	Vertical	Pass
419.940	-65.75	2.23	-57.0	-8.75	143.50	Horizontal	Vertical	Pass
541.918	-62.37	2.92	-57.0	-5.37	163.90	Horizontal	Vertical	Pass
960.472	-66.73	9.63	-57.0	-9.73	319.80	Horizontal	Vertical	Pass

Vertical



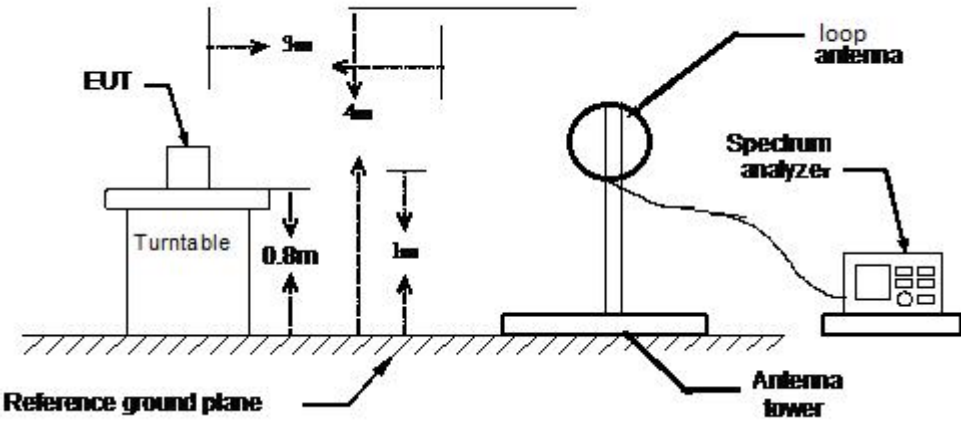
Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
32.667	-73.25	-7.84	-57.0	-16.25	30.90	Vertical	Vertical	Pass
97.173	-68.81	-6.34	-57.0	-11.81	4.40	Vertical	Vertical	Pass
179.865	-70.83	-8.31	-57.0	-13.83	356.40	Vertical	Vertical	Pass
300.873	-68.77	-3.44	-57.0	-11.77	288.80	Vertical	Vertical	Pass
421.395	-65.82	1.25	-57.0	-8.82	34.20	Vertical	Vertical	Pass
539.977	-66.37	5.95	-57.0	-9.37	349.00	Vertical	Vertical	Pass

8. TRANSMITTER OUT OF BAND (OOB) EMISSIONS

8.1 LIMIT

The OOB limits are visualized in Figures 4 and 5; they are descending from the intentional limits from Table 3 at fH/fL with 10 dB/decade.

8.2 TEST CONFIGURATION



8.3 TEST PROCEDURE

1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.2 for the measurement method.

8.4 TEST RESULT

Mode 1

Out of Band emission	F_{SL}	F_L	F_H	F_{SH}
Operation Frequency (KHz)	133.75	147.58	147.750	157.750
Reading (dBμA)	30.615	39.215	39.324	29.826
limit (dBμA/m)	68.127	68.900	26.700	69.325
Result	Pass	Pass	Pass	Pass

Mode 2

Out of Band emission	F_{SL}	F_L	F_H	F_{SH}
Operation Frequency (KHz)	108.35	118.35	124.850	134.850
Reading (dBμA)	10.115	29.136	29.215	9.315
limit (dBμA/m)	96.419	97.338	26.700	97.749
Result	Pass	Pass	Pass	Pass

Mode 3/4

Out of Band emission	F_{SL}	F_L	F_H	F_{SH}
Operation Frequency (KHz)	110.30	120.30	132.650	142.650
Reading (dBμA)	-14.997	11.864	17.256	-13.282
limit (dBμA/m)	96.742	97.606	26.700	98.022
Result	Pass	Pass	Pass	Pass

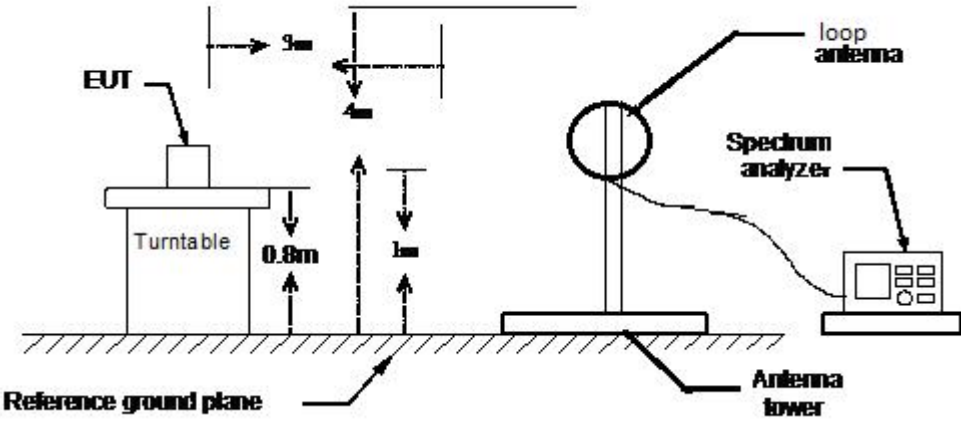
9. WPT SYSTEM UNWANTED CONDUCTED EMISSIONS

9.1 LIMIT

The common mode current (ICM) between 1 MHz and 30 MHz shall not exceed the following limit:
I_{CM} = 47 – 8 × log(f) dBμA
NOTE: f is the frequency in MHz.

9.2 TEST CONFIGURATION

Below 30MHz



9.3 TEST PROCEDURE

1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.2 for the measurement method.

9.4 TEST RESULT

Note: Not applicable.

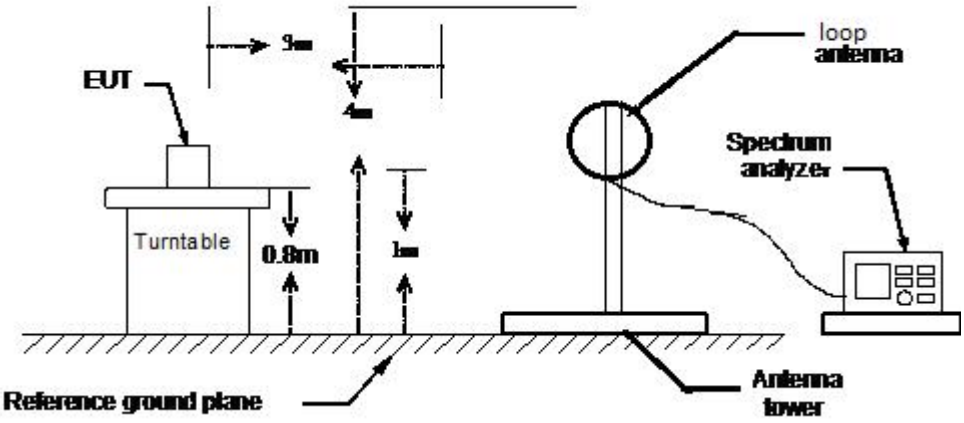
10. RECEIVER BLOCKING

10.1 LIMIT

Table 6: Receiver blocking limits

	In-band signal	OOB signal	Remote-band signal
Frequency	Centre frequency (f_c) of the WPT system (see clause 4.3.3)	$f = f_c \pm F$ (see note)	$f = f_c \pm 10 \times F$ (see note)
Signal level field strength at the EUT	72 dBµA/m	72 dBµA/m	82 dBµA/m
NOTE: F = OFR see clause 4.3.3.			

10.2 TEST CONFIGURATION



10.3 TEST PROCEDURE

1. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 5 for the test conditions.
2. Please refer to ETSI EN 303 417 (V.1.1.1) Sub-clause 6.3 for the measurement method.

10.4 TEST RESULT

Note: Only show the worst case in the report.

Mode 1

operation frequency (KHz)	In-band signal(dBµA/m)	OOB signal (dBµA/m)	Remote-band signal(dBµA/m)
174.9	72	/	/
171.5	/	72	/
178.3	/	72	/
140.9	/	/	82
208.9	/	/	82
Limit	Input the interference signal can work normally		
result	PASS	PASS	PASS

Note: F=OFR=4KHz

Mode 2

operation frequency (KHz)	In-band signal(dBμA/m)	OOB signal (dBμA/m)	Remote-band signal(dBμA/m)
174.9	72	/	/
171.5	/	72	/
178.3	/	72	/
140.9	/	/	82
208.9	/	/	82
Limit	Input the interference signal can work normally		
result	PASS	PASS	PASS

Note: F=OFR=4KHz

Mode 3

operation frequency (KHz)	In-band signal(dBμA/m)	OOB signal (dBμA/m)	Remote-band signal(dBμA/m)
174.9	72	/	/
171.5	/	72	/
178.3	/	72	/
140.9	/	/	82
208.9	/	/	82
Limit	Input the interference signal can work normally		
result	PASS	PASS	PASS

Note: F=OFR=4KHz

※※※※※ END OF THE REPORT※※※※※

TEST REPORT

Report No: FCS202604148H01

Issued for

Applicant:	Mid Ocean Brands B.V.
Address:	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Product Name:	Wireless Speaker
Brand Name:	N/A
Model Name:	MO2378
Series Model:	N/A
Test Standard:	EN 62311:2020 EN 50665:2017
Issued By: Dongguan Funas Testing Technology Co.,Ltd Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China Tel: 769-27280901 http://www.fcs-lab.com E-mail:andy.yue@fcs-lab.com	

TEST RESULT CERTIFICATION

Applicant's Name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan , Kowloon, Hong Kong.
Manufacture's Name..... :	Mid Ocean Brands B.V.
Address..... :	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan , Kowloon, Hong Kong.

Product Description

Product Name..... :	Wireless Speaker
Brand Name .....:	N/A
Model Name..... :	MO2378
Series Model.....:	N/A
Test Standards.....:	EN 62311:2020 EN 50665:2017

This device described above has been tested by FCS, and the test results show that the equipment under test (EUT) is in compliance with the 2014/53/EU RED Directive requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of FCS, this document may be altered or revised by FCS, personal only, and shall be noted in the revision of the document.

Date of Test.....:	
Date (s) of performance of tests. :	Apr 14, 2026~Apr 23, 2026
Date of Issue.....:	Apr 23, 2026
Test Result..... :	**Pass**

Tested by : orange OuYang

(orange OuYang)

Reviewed by : Jayden

((jayden)

Approved by : Jack Wang

(Jack Wang)

Table of Contents

Page

1. Testing laboratory

Company Name:	Dongguan Funas Testing Technology Co.,Ltd.
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
Laboray Accreditations	
FCC Test Firm Registration Number: 514908 CNAS Number： L15566 Designation number：CN0127 A2LA accreditation number：5545.01 ISED Number：25801	

2. GENERAL INFORMATION

Equipment	Wireless Speaker	
Brand Name	N/A	
Model Name.	MO2378	
Serial Model	N/A	
Model Difference	Wireless Speaker	
Product Description	The is a Wireleass charger.	
	Operation Frequency	110kHz-205kHz
	Antenna Designation	PCB Antenna
	Antenna Gain(Peak)	0 dBi
	More details of EUT technical specification, please refer to the User's Manual.	
Power Rating:	Output power : 15W Max Input: DC 9V 3A, 5V 3A output: DC 5V 1A, 7.5V 1A, 9V 1.1A, 9V 1.67A	
Battery	Rated Voltage: 3.7V Capacity: 1200mAh	
Hardware version number	V1.0	
Software version number	V1.0	

Note:

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

GENERAL DESCRIPTION OF EUT

3.EN 62311 REQUIREMENT

GENERAL INFORMATION

According to its specifications, the EUT must comply with the requirements of the following standards:
EN 62311: 2020 [Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)]

LIMIT

A. Typical usage, installation and the physical characteristics of equipment make it inherently compliant with the applicable EMF exposure levels such as those listed in the bibliography. This low-power equipment includes unintentional (or non-intentional) radiators, for example incandescent light bulbs and audio/visual (A/V) equipment, information technology equipment (ITE) and multimedia equipment (MME) that does not contain radio transmitters.
NOTE Equipment is described as A/V equipment, ITE or MME if its main use is playback/recording of music, voice or images, or processing of digital information.
B. The input power level to electrical or electronic components that are capable of radiating electromagnetic energy in the relevant frequency range is so low that the available antenna power and/or the average total radiated power cannot exceed the low-power exclusion level defined in 4.2.
C. The available antenna power and/or the average total radiated power are limited by product standards for transmitters to levels below the low-power exclusion level defined in 4.2.
D. Measurements or calculations show that the available antenna power and/or the average total radiated power are below the low-power exclusion level defined in 4.2.

4. RESULT

It is found that the max result is 3.26 dBm (2.12mW) less than 20 mW (please refer to the test report “FCS202604148W02”. BT: 3.83dBm (2.42 mW) less than 20 mW (please refer to the test report “FCS202604148W01”. The SAR-based Pmax follows Guideline / Standard: ICNIRP. Therefore, the EUT is deemed to comply with EMF basic restrictions.

……END OF REPORT……