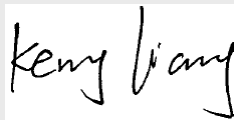
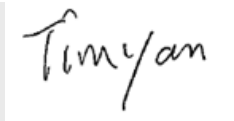


Test report No: 4390416.52

TEST REPORT

Radio Spectrum Matters (RF)

Identification of item tested	Split-Type Air-Conditioner	
Trademark	TCL	
Model and /or type reference	TAC-09CHSD/*I3A, TAC-12CHSD/*I3A, TAC-18CHSD/*I3A, TAC-24CHSD/*I3A (* = TP11, TP21, TP31, TP41, TP51, TP61, TP71, TP72, TP81, TP91, TPA1, TPB1, TPC1, TPC2, TPD1, TPD2, TPE1, TPE2, TPG11, TPG21, TPG31)	
Features	220-240 V~, 50 Hz, Class I	
Applicant's name / address	TCL Air Conditioner (Zhong Shan) Co., Ltd. No.59 Nantou Road West, Nantou Town, Zhongshan City, Guangdong, China	
Test method requested, standard	ETSI EN 300 328 V2.2.2 (2019-07)	
Verdict Summary	COMPLIANCE	
Tested by (name / signature)	Kenny Liang	
Approved by (name / signature)	Tim Yan	
Date of issue	2022-10-17	
Report template No	TRF_EMG 2017-06-328	

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GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. This report will not be used for social proof function in China market.

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	-10 - +40 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

<input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.
<input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.

Decimal separator used in this report	<input checked="" type="checkbox"/>	Comma (,)	<input type="checkbox"/>	Point (.)
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ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
Tx	: Transmitter
Rx	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report nr.	Date	Description
4390416.52	2022-10-17	First release.

REMARKS AND COMMENTS

The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).

This report for bluetooth wireless characteristics.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	Split-Type Air-Conditioner
Trademark	TCL
Model / Type number	TAC-09CHSD/*I3A, TAC-12CHSD/*I3A, TAC-18CHSD/*I3A, TAC-24CHSD/*I3A (* = TP11, TP21, TP31, TP41, TP51, TP61, TP71, TP72, TP81, TP91, TPA1, TPB1, TPC1, TPC2, TPD1, TPD2, TPE1, TPE2, TPG11, TPG21, TPG31)
Ratings	220-240 V~, 50 Hz, Class I
Manufacturer.....	Same as applicant
Factory	TCL Air conditioner (Zhong Shan) Co., Ltd. No. 59, Nantou Road West, Nantou, Zhongshan, Guangdong, China

Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input checked="" type="checkbox"/>	AC: 220-240 V, 50 Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	DC:					
	<input type="checkbox"/>	Battery:					
Clock frequencies	Less than 15MHz						
Mounting position.....	<input type="checkbox"/>	Table top equipment					
	<input type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input checked="" type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input type="checkbox"/>	Other:					

According to customer's declaration, the products contain RF wireless module(WIFI+BLE) and the characteristics are:

For BLE characteristics:

Operating frequency range(s) – Tx :	2402-2480 MHz
Operating frequency range(s) – Rx :	2402-2480 MHz
Type of Modulation	GFSK
Maximum RF output power	6 dBm
Antenna type.....	Integral Antenna
Antenna gain.....	2,5 dBi
Adaptivity	Adaptive
Geo-location Capability	Not Support
Number of channel.....	40
Operating Temperature Range.....	-10 - +40 °C

For WIFI characteristics:

Operating frequency range(s) – Tx :	2412-2472 MHz
Operating frequency range(s) – Rx :	2412-2472 MHz
Type of Modulation	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Data Rate	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7
Geo-location Capability	Not Support
Adaptivity	Adaptive
Maximum RF output power(EIRP) . :	20 dBm
Antenna type.....	Integral Antenna
Antenna gain.....	2,5 dBi
Number of channel.....	IEEE 802.11b: 13 IEEE 802.11g: 13 IEEE 802.11n-HT20: 13
Operating Temperature Range.....	-10 – +40 °C

Intended use of the Equipment Under Test (EUT)
<p>The apparatus as supplied for the test are split type air conditioners which have cooling and heating functions and intended for residential use. The products contain electronic control circuitry and earth connection.</p> <p>Models TAC-09CHSD/*I3A, TAC-12CHSD/*I3A, TAC-18CHSD/*I3A, TAC-24CHSD/*I3A have similar construction except for the size and components.</p> <p>In the model name, * = TP11, TP21, TP31, TP41, TP51, TP61, TP71, TP72, TP81, TP91, TPA1, TPB1, TPC1, TPC2, TPD1, TPD2, TPE1, TPE2, TPG11, TPG21, TPG31 which indicates different panel of indoor unit.</p> <p>Hence, models TAC-09CHSD/ TP11I3A was chosen for full test, models TAC-12CHSD/ TP11I3A, TAC-18CHSD/ TP11I3A, TAC-24CHSD/ TP11I3A were chosen for radiated spurious test and the corresponding data are also representative for other models as well.</p>

Copy of marking plate:
<p>The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.</p> <p>Not provided.</p>

1.2 Test data

Test Location	DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China
Date of receipt of test item	2022-05-26
Date (s) of performance of tests	2022-05-26 to 2022-07-27

1.3 The environment(s) in which the EUT is intended to be used

The equipment under test (EUT) is intended to be used in the following environment(s):

<input checked="" type="checkbox"/>	Residential (domestic) environment.
<input checked="" type="checkbox"/>	Commercial and light-industrial environment.
<input type="checkbox"/>	Industrial environment.

1.4 Classification of Receivers according to EN 300328

The receivers were subdivided into 3 categories according to EN 300 328 V2.2.2. For each category, the specific immunity requirements are formulated.

For BLE:

	Receiver category	Definition
	1	Adaptive equipment with a maximum RF output power greater than 10 dBm e.i.r.p. NOTE: Non-adaptive equipment is categorized as receiver category 2 or receiver category 3.
√	2	<ul style="list-style-type: none"> non-adaptive equipment with a Medium Utilization (MU) factor greater than 1 % and less than or equal to 10 % (irrespective of the maximum RF output power); or equipment (adaptive or non-adaptive) with a maximum RF output power greater than 0 dBm e.i.r.p. and less than or equal to 10 dBm e.i.r.p.
	3	<ul style="list-style-type: none"> non-adaptive equipment with a maximum Medium Utilization (MU) factor of 1 % (irrespective of the maximum RF output power); or equipment (adaptive or non-adaptive) with a maximum RF output power of 0 dBm e.i.r.p.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating mode	Operating mode description	Used for methos	
		Conducted	Radiated
1	Transmitting (Tx)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Receiving (Rx)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>
Supplemental information: ---			

2.2 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
Laptop	Latitude 5488	DELL	DEKRA
Supplemental information: ---			

2.3 Test Configuration / Block diagram used for tests

Refer to Annex 3.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
ETSI 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

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

3.3 Overview of results

TRANSMITTER TESTS		
Requirements for other types of Wideband Data Transmission equipment (non-FHSS equipment)	Verdict	Remark
RF output power	PASS	---
Power Spectral Density	PASS	---
Duty Cycle, Tx-sequence, Tx-gap	N/A	See 1)
Medium Utilization (MU) factor	N/A	See 1)
Adaptivity (non-FHSS)	N/A	See 2)
Occupied Channel Bandwidth (BW)	PASS	---
Transmitter unwanted emissions in the out-of-band domain	PASS	---
Transmitter unwanted emissions in the spurious domain	PASS	---
Supplementary information: 1) These requirements do not apply for equipment with a declared RF Output power level of less than 10 dBm e.i.r.p. or for equipment when operating in a mode where the RF Output power is less than 10 dBm e.i.r.p. 2) This requirement does not apply to non-adaptive non-FHSS equipment or adaptive non-FHSS equipment operating in a non-adaptive mode. In addition, this requirement does not apply for non-FHSS equipment with a maximum declared RF Output power level of less than 10 dBm e.i.r.p. or for non-FHSS equipment when operating in a mode where the RF Output power is less than 10 dBm e.i.r.p.		

RECEIVER TESTS		
Requirement	Verdict	Remark
Receiver spurious emission	PASS	--
Receiver Blocking	PASS	---
Geo-location capability	N/A	See 1)
Supplementary information: This requirement only applies to equipment with geo-location capability		

3.4 Measurement procedure

The EUT was controlled by a serial PCB which provided by manufacturer which connected to laptop through the com port. After connected, run the software supplied by manufacturer to control the EUT work in required test mode as below table.

Mode	Frequency (MHz)
BLE	2402
	2440
	2480

4 TRANSMITTER TEST RESULTS

4.1 RF output power	VERDICT: PASS
---------------------	---------------

Standard	ETSI EN 300 328 V2.2.2
Clause	4.3.2.2
Limits: The RF output power for non-FHSS equipment shall be equal to or less than 20 dBm. NOTE: For Non-adaptive FHSS equipment, the manufacturer may have declared a reduced RF Output Power (see clause 5.4.1 m)) and associated Duty Cycle (see clause 5.4.1 e)) that will ensure that the equipment meets the requirement for the Medium Utilization (MU) factor further described in clause 4.3.2.5. This is verified by the conformance test referred to in clause 4.3.2.5.4. For non-adaptive non-FHSS equipment, where the manufacturer has declared an RF output power of less than 20 dBm e.i.r.p., the RF output power shall be equal to or less than that declared value. This limit shall apply for any combination of power level and intended antenna assembly.	

Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

Temperature	Mode	Channel (MHz)	Reading Level (dBm)	Antenna Gain (dBi)	RF output power (dBm)	Limit (dBm)
25 °C	Tx	2402	2,59	2,5	5,09	20
		2440	3,1	2,5	5,60	20
		2480	2,23	2,5	4,73	20
-10 °C	Tx	2402	3,32	2,5	5,82	20
		2440	2,99	2,5	5,49	20
		2480	2,13	2,5	4,63	20
40 °C	Tx	2402	2,42	2,5	4,92	20
		2440	3,05	2,5	5,55	20
		2480	2,19	2,5	4,69	20

4.2 Power Spectral Density	VERDICT: PASS
-----------------------------------	----------------------

Standard	ETSI EN 300 328 V2.2.2
Clause	4.3.2.3
Limits: The maximum Power Spectral Density for non-FHSS equipment is 10 dBm per MHz.	

Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

Mode	Channel (MHz)	Power Spectral Density (dBm)	Limit (dBm/ MHz)
Tx @25 °C	2402	5,04	10
	2440	5,55	
	2480	4,67	

4.3	Occupied Channel Bandwidth	VERDICT: PASS
------------	-----------------------------------	----------------------

Standard	ETSI EN 300 328 V2.2.2
Clause	4.3.2.7
Limits: The Occupied Channel Bandwidth shall be within the band given in table 1 (2,4 GHz to 2,4835 GHz). In addition, for non-adaptive non-FHSS equipment with e.i.r.p. greater than 10 dBm, the Occupied Channel Bandwidth shall be equal to or less than 20 MHz.	

Performed measurements

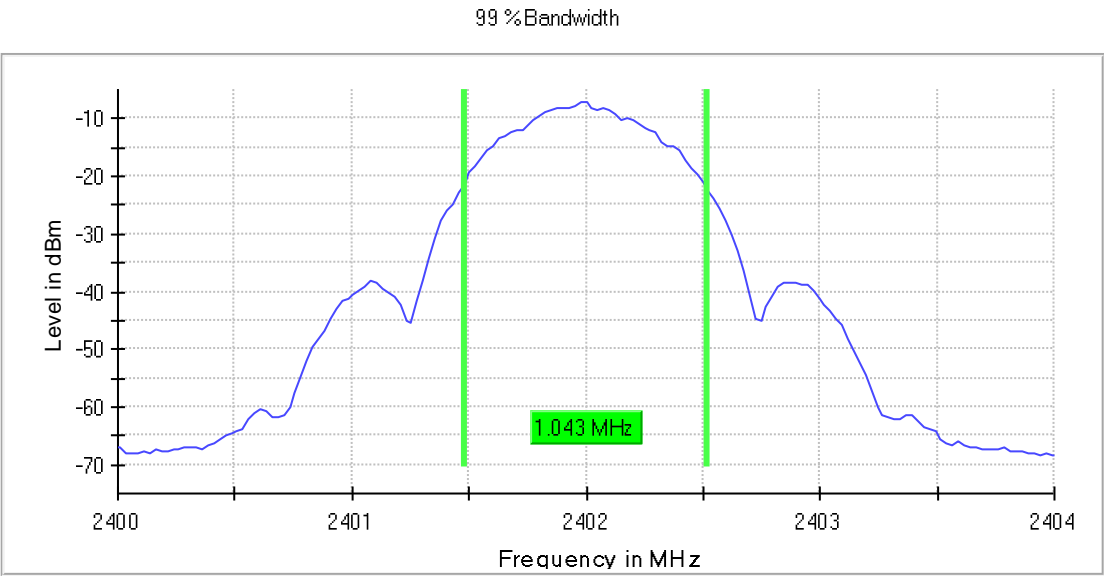
Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

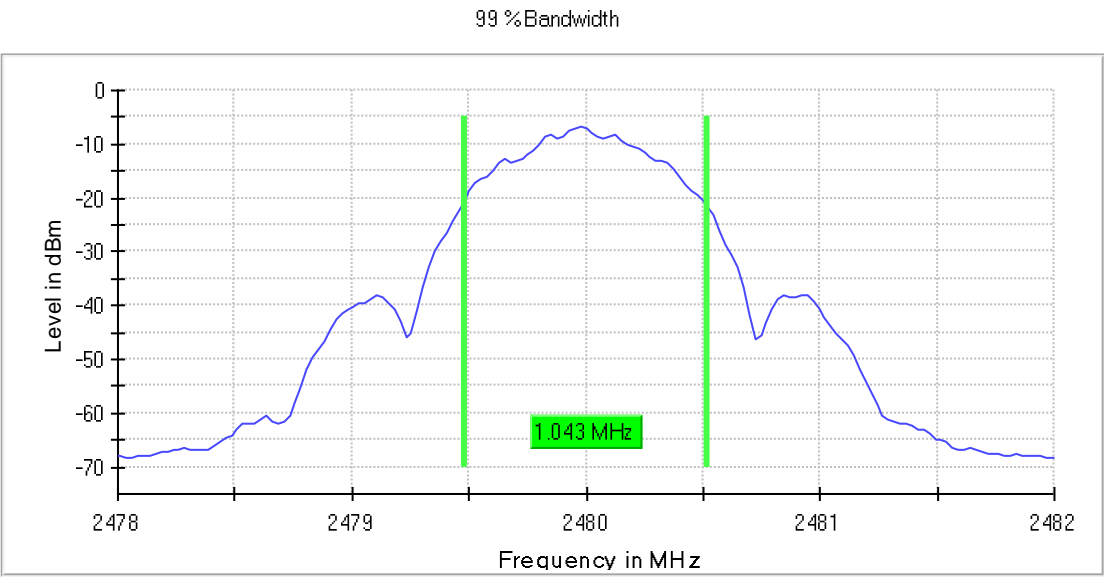
Mode	Channel (MHz)	Bandwidth 99%(MHz)	FL (MHz) or FH (MHz)	Lower Limit (MHz)	Higher Limit
Tx @25 °C	2402	1,043	FL: 2401,478	> 2400,0	N/A
	2480	1,043	FH: 2480,521	N/A	< 2483,5

Test data see next page.

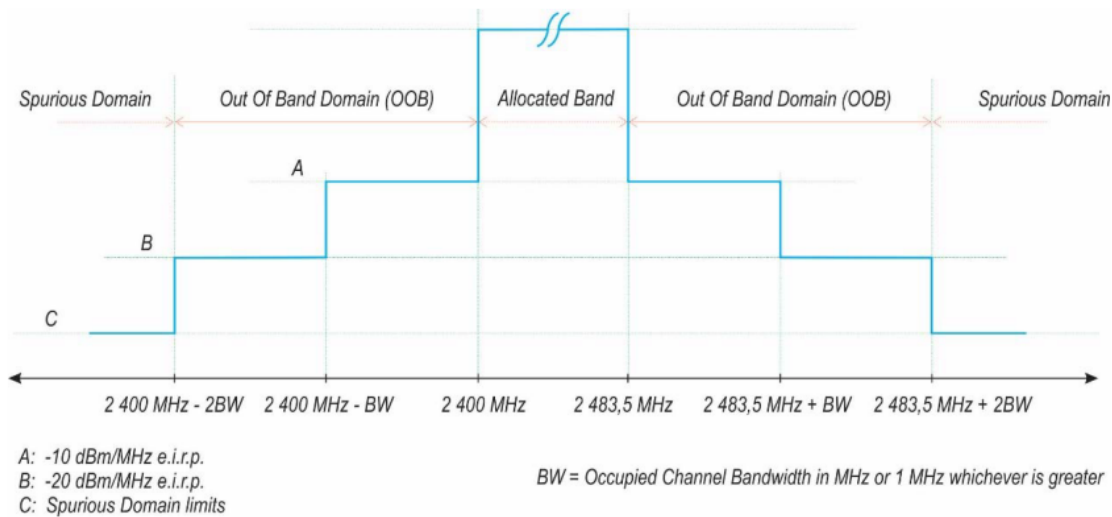
2402MHz :



2480MHz:



4.4	Transmitter unwanted emissions in the out-of-band domain	VERDICT: PASS
-----	---	----------------------

Standard	ETSI EN 300 328 V2.2.2
Clause	4.3.2.8
Limits: The transmitter unwanted emissions in the out-of-band domain shall not exceed the values provided by the mask in figure 3.	
 <p>The diagram illustrates the transmit mask for a transmitter. It shows a frequency spectrum with three main regions: Spurious Domain, Out Of Band Domain (OOB), and Allocated Band. The Allocated Band is centered around 2400 MHz and 2483.5 MHz. The OOB regions are defined by the limits 2400 MHz - BW, 2400 MHz - BW, 2400 MHz, 2483.5 MHz, 2483.5 MHz + BW, and 2483.5 MHz + 2BW. The Spurious Domain is defined by the limits 2400 MHz - 2BW and 2483.5 MHz + 2BW. The power levels are defined by three horizontal lines: A (top), B (middle), and C (bottom). Line A represents -10 dBm/MHz e.i.r.p., Line B represents -20 dBm/MHz e.i.r.p., and Line C represents Spurious Domain limits. The mask shows that the power level in the OOB regions is limited to Line B, and the power level in the Spurious Domain is limited to Line C. The power level in the Allocated Band is limited to Line A. The mask is shown as a blue line that steps up to Line A in the Allocated Band and steps down to Line B in the OOB regions and Line C in the Spurious Domain.</p> <p>A: -10 dBm/MHz e.i.r.p. B: -20 dBm/MHz e.i.r.p. C: Spurious Domain limits</p> <p>BW = Occupied Channel Bandwidth in MHz or 1 MHz whichever is greater</p>	
Figure 3: Transmit mask	

Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

See next page.

Results

Mode	Channel (MHz)	Frequency (MHz)	level (dBm)	Limit (dBm)	Result
Tx @25 °C	2402 MHz	2398.413044	-54.7	-20.0	PASS
		2398.456522	-52.3	-20.0	PASS
		2399.456522	-54.0	-10.0	PASS
		2399.500000	-52.0	-10.0	PASS
		2484.000000	-53.1	-10.0	PASS
		2484.043478	-54.3	-10.0	PASS
		2485.043478	-54.3	-20.0	PASS
		2485.086956	-53.8	-20.0	PASS

Mode	Channel (MHz)	Frequency (MHz)	level (dBm)	Limit (dBm)	Result
Tx @25 °C	2480 MHz	2398.413044	-54.8	-20.0	PASS
		2398.456522	-55.1	-20.0	PASS
		2399.456522	-54.9	-10.0	PASS
		2399.500000	-53.7	-10.0	PASS
		2484.000000	-52.6	-10.0	PASS
		2484.043478	-53.6	-10.0	PASS
		2485.043478	-54.9	-20.0	PASS
		2485.086956	-55.1	-20.0	PASS

4.5	Transmitter unwanted emissions in the spurious domain	VERDICT: PASS
-----	--	----------------------

Standard	ETSI EN 300 328 V2.2.2																																		
Clause	4.3.2.9																																		
Limits: The transmitter unwanted emissions in the spurious domain shall not exceed the values given in table 12. In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.																																			
Table 12: Transmitter limits for spurious emissions																																			
<table><tr><th>Frequency range</th><th>Maximum power</th><th>Bandwidth</th></tr><tr><td>30 MHz to 47 MHz</td><td>-36 dBm</td><td>100 kHz</td></tr><tr><td>47 MHz to 74 MHz</td><td>-54 dBm</td><td>100 kHz</td></tr><tr><td>74 MHz to 87,5 MHz</td><td>-36 dBm</td><td>100 kHz</td></tr><tr><td>87,5 MHz to 118 MHz</td><td>-54 dBm</td><td>100 kHz</td></tr><tr><td>118 MHz to 174 MHz</td><td>-36 dBm</td><td>100 kHz</td></tr><tr><td>174 MHz to 230 MHz</td><td>-54 dBm</td><td>100 kHz</td></tr><tr><td>230 MHz to 470 MHz</td><td>-36 dBm</td><td>100 kHz</td></tr><tr><td>470 MHz to 694 MHz</td><td>-54 dBm</td><td>100 kHz</td></tr><tr><td>694 MHz to 1 GHz</td><td>-36 dBm</td><td>100 kHz</td></tr><tr><td>1 GHz to 12,75 GHz</td><td>-30 dBm</td><td>1 MHz</td></tr></table>			Frequency range	Maximum power	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 694 MHz	-54 dBm	100 kHz	694 MHz to 1 GHz	-36 dBm	100 kHz	1 GHz to 12,75 GHz	-30 dBm	1 MHz
Frequency range	Maximum power	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 694 MHz	-54 dBm	100 kHz																																	
694 MHz to 1 GHz	-36 dBm	100 kHz																																	
1 GHz to 12,75 GHz	-30 dBm	1 MHz																																	

Performed measurements

Port under test	Enclosure port
Test method applied	<input type="checkbox"/> Conducted measurement
	<input checked="" type="checkbox"/> Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).
Operating mode(s) used	Mode 1
Remark	---

Results for model TAC-09CHSD/ TP1113A

Channel (MHz)	Polarity	Frequency (MHz)	Reading (dBm)	Attenuation (dB)	Result (dBm)	Limit (dBm)	Verdict
2402	H	4804,86	-52,56	7,54	-45,02	-30,00	PASS
		7206,93	-56,10	11,20	-44,90	-30,00	PASS
	V	4804,86	-54,18	8,32	-45,86	-30,00	PASS
		7206,93	-58,50	11,66	-46,84	-30,00	PASS
2480	H	4960,18	-46,43	8,05	-38,38	-30,00	PASS
		7439,72	-49,14	11,36	-37,78	-30,00	PASS
	V	4960,18	-55,57	15,47	-40,10	-30,00	PASS
		7439,72	-53,89	11,45	-42,44	-30,00	PASS

Results for model TAC-12CHSD/ TP1113A

Channel (MHz)	Polarity	Frequency (MHz)	Reading (dBm)	Attenuation (dB)	Result (dBm)	Limit (dBm)	Verdict
2402	H	4804,89	-53,53	7,54	-45,99	-30,00	PASS
		7206,54	-55,15	11,20	-43,95	-30,00	PASS
	V	4804,33	-53,17	8,32	-44,85	-30,00	PASS
		7206,69	-57,22	11,66	-45,56	-30,00	PASS
2480	H	4960,22	-48,42	8,05	-40,37	-30,00	PASS
		7439,72	-47,14	11,36	-35,78	-30,00	PASS
	V	4960,34	-55,51	15,47	-40,04	-30,00	PASS
		7439,72	-53,19	11,45	-41,74	-30,00	PASS

Results for model TAC-18CHSD/ TP1113A

Channel (MHz)	Polarity	Frequency (MHz)	Reading (dBm)	Attenuation (dB)	Result (dBm)	Limit (dBm)	Verdict
2402	H	4804,89	-55,51	7,54	-47,97	-30,00	PASS
		7206,54	-54,22	11,20	-43,02	-30,00	PASS
	V	4804,33	-53,17	8,32	-44,85	-30,00	PASS
		7206,69	-56,48	11,66	-44,82	-30,00	PASS
2480	H	4960,22	-49,32	8,05	-41,27	-30,00	PASS
		7439,72	-48,25	11,36	-36,89	-30,00	PASS
	V	4960,34	-54,56	15,47	-39,09	-30,00	PASS
		7439,72	-55,17	11,45	-43,72	-30,00	PASS

Results for model TAC-24CHSD/ TP1113A

Channel (MHz)	Polarity	Frequency (MHz)	Reading (dBm)	Attenuation (dB)	Result (dBm)	Limit (dBm)	Verdict
2402	H	4804,89	-53,53	7,54	-45,99	-30,00	PASS
		7206,54	-55,15	11,20	-43,95	-30,00	PASS
	V	4804,33	-53,17	8,32	-44,85	-30,00	PASS
		7206,69	-57,22	11,66	-45,56	-30,00	PASS
2480	H	4960,22	-48,42	8,05	-40,37	-30,00	PASS
		7439,72	-47,14	11,36	-35,78	-30,00	PASS
	V	4960,34	-55,51	15,47	-40,04	-30,00	PASS
		7439,72	-53,19	11,45	-41,74	-30,00	PASS

5 RECEIVER TEST RESULTS

5.1	Receiver spurious emissions	VERDICT: PASS
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Standard	ETSI EN 300 328 V2.2.2	
Clause	4.3.2.10	
Limits:		
Frequency range	Maximum power e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

Performed measurements

Port under test	Enclosure port	
Test method applied	<input type="checkbox"/>	Conducted measurement
	<input checked="" type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 2	
Remark	---	

Results

Channel (MHz)	Polarity	Frequency (MHz)	Reading (dBm)	Attenuation (dB)	Result (dBm)	Limit (dBm)	Verdict
2402	H	No significant emissions were measured at the frequency range of interest employing the PK detectors (more than 20 dB below limits).					PASS
	V						PASS
2480	H	No significant emissions were measured at the frequency range of interest employing the PK detectors (more than 20 dB below limits).					PASS
	V						PASS

5.2	Receiver Blocking	VERDICT: PASS
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Standard	ETSI EN 300 328 V2.2.2		
Clause	4.3.2.11		
Limits:			
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.			
Performance Criteria: For equipment that supports a PER or FER test to be performed, the minimum performance criterion shall be a PER or FER less than or equal to 10 %. For equipment that does not support a PER or a FER test to be performed, the minimum performance criterion shall be no loss of the wireless transmission function needed for the intended use of the equipment.			

Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 2	
Remark	---	

See next page.

Results

Test Channel	Wanted Signal Level [dBm]	Freq [MHz]	CW Level [dBm]	PER [%]	Limit [%]	Verdict
2402	-69	2380.000000	-34.0	0.0	<=10	PASS
2402	-69	2300.000000	-34.0	0.0	<=10	PASS
2402	-69	2330.000000	-34.0	0.0	<=10	PASS
2402	-69	2360.000000	-34.0	0.0	<=10	PASS
2480	-69	2504.000000	-34.0	0.0	<=10	PASS
2480	-69	2524.000000	-34.0	0.0	<=10	PASS
2480	-69	2584.000000	-34.0	0.0	<=10	PASS
2480	-69	2674.000000	-34.0	0.0	<=10	PASS

6 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photographs show the tested device.



Indoor unit view of TAC-09CHSD/ TP11I3A



Outdoor unit view of TAC-09CHSD/ TP11I3A



Indoor unit view of TAC-12CHSD/ TP11I3A



Outdoor unit view of TAC-12CHSD/ TP11I3A



Indoor unit view of TAC-18CHSD/ TP11I3A



Outdoor unit view of TAC-18CHSD/ TP11I3A



Indoor unit view of TAC-24CHSD/ TP11I3A



Outdoor unit view of TAC-24CHSD/ TP11I3A

ANNEX 1 – MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Occupied Channel Bandwidth	$\pm 0,7\%$
RF Output power, conducted	$\pm 0,6\text{dB}$
Power Spectral Density, Conducted	$\pm 0,6\text{dB}$
Unwanted Emissions, Conducted	$\pm 0.7\text{dB}$
Spurious (30-1000MHz)	$\pm 4,4\text{dB}$
Spurious (1-12,75GHz)	$\pm 4,4\text{dB}$

ANNEX 2 – USED EQUIPMENT

Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2023/01/17
Chamber	ETS	/	/	G/L856	2024/06/04
Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2023/03/14
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2023/02/22
EMI receiver	R&S	ESCI	101205	G/L857	2023/07/07
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2022/10/25
OSP	R&S	OSP 150	101907	GZ1894	2023/03/03
Signal generator	R&S	SMB 100A	181317	GZ1895	2023/03/03
Vector signal generator	R&S	SMBV100A	263671	GZ1896	2023/03/03
Wireless connectivity tester	R&S	CMW 270	100990	GZ1893	2023/03/03
Manual step attenuator (11dB)	Keysight	8494B	TH60074118	GZ2086	2022/07/24
Manual step attenuator (70dB)	Keysight	8495D	TH60074471	GZ2087	2022/07/24
Programmable Temperature & Humidity Chamber	ASTUOD	TT-5166	52689	G/L2209	2023/05/10
Test software	R&S	EMC32	---	---	Version 11.30.00

ANNEX 3 - TEST PHOTOS

Conducted measurements



Normal condition test setup



Exetrm condition test setup

--- END ---