

	TEST REPORT		 TC-7575
	ETSI EN 300 328 V2.2.2 (2019-07)		
	Report No.:SETC23336013	ULR: TC757523000003041F	
	Date of Issue:20/12/2023	Page: 1 of 22	

Test Report-2.4G BLE

Applicant's Details:

Applicant Name & Address:	ORNATE QUALITY SERVICES PRIVATE LIMITED
	HOUSE NO. 8, GALI NO. 3, MOLARBAND EXTN, BADARPUR, SOUTH DELHI, DELHI
Manufacturer's Name & Address:	UMEON INNOVATIONS CO., LTD
	1901, BLOCK A, BUILDING 8, SHENZHEN INTERNATIONAL INNOVATION VALLEY, DASHI 1 ST , ROAD, XIII STREET, NANSHAN DISTRICT, SHENZHEN, NA, SHENZHEN, China - 518000

Product Details:

Product Name:	Smart Watch
Model No.:	KW1305
Series Model:	R1C
Brand Name:	
Max RF Output Burst Power(watt):	0.0017
Antenna Gain(dBi):	0.5
Max E.I.R.P(dBm):	2.42
Power Density(dBm/MHz)	1.69
Applicable standards:	ETSI EN 300 328 V2.2.2(2019-07)

Testing Lab Details:

Date of Receipt:	02/12/2023
Report No.:	SETC23336013
Test Start Date:	02/12/2023
Test End Date:	20/12/2023
ULR:	TC757523000003041F
Date of Issue:	20/12/2023
Test laboratory :	SWASTIK ELECTRONICS TESTING CENTRE

This device has been tested and found to comply with the stated standard(s), and tests results indicated in the test report and are applicable only to the tested sample identified in the report.



<div> <div>Tested by: ABHAY KUMAR VERMA</div> <div>Approved by: PRINCE NIGAM</div> </div>	
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1 Test Summary

1.1 Compliance with ETSI EN 300 328 V2.2.2 (2019-07)



No.	Description of Test Item	Basic Standard	Results
Transmitter Parameters			
1	RF Output Power	EN300328 clause 4.3.2.2	Pass
2	Power spectral density	EN300328 clause 4.3.2.3	Pass
3	Occupied Channel Bandwidth	EN300328 clause 4.3.2.7	Pass
4	Transmitter unwanted emissions in the out-of-band domain	EN300328 clause 4.3.2.8	Pass
5	Transmitter unwanted emissions in the spurious domain	EN300328 clause 4.3.2.9	Pass
Receiver Parameters			
6	Receiver spurious emissions	EN300328 clause 4.3.2.10	Pass
EN 300 328: the detail version is ETSI EN 300 328 V2.2.2 (2019-07)in the whole report.			
Tx: In this whole report Tx (or tx) means Transmitter. Rx: In this whole report Rx (or rx) means Receiver. RF: In this whole report RF means Radio Frequency.			

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1.2 Measurement Uncertainty



No	Item	Uncertainty(±)
1	RF Output power,conducted	±1.9 dBm
2	Power spectral density,conducted	± 1.8dBm/MHz
3	Occupied Channel Bandwidth	± 1.89 MHz
4	Transmitter unwanted emissions in the out-of-band domain	± 2.3 dBm
5	Transmitter unwanted emissions in the spurious domain	±2.3 dBm
6	Receiver spurious emissions	± 1.9 dBm

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2 Test Facility

The test facility is recognized, certified by NABL.

2.1 Deviation from Standard

None

2.2 Abnormalities from Standard Conditions



None

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3 General Information

3.1 General Description of EUT



Applicant Name :	ORNATE QUALITY SERVICES PRIVATE LIMITED
Applicant Address:	HOUSE NO. 8, GALI NO. 3, MOLARBAND EXTN, BADARPUR, SOUTH DELHI, DELHI
Manufacturer:	UMEOX INNOVATIONS CO., LTD
Manufacturer Address:	1901, BLOCK A, BUILDING 8, SHENZHEN INTERNATIONAL INNOVATION VALLEY, DASHI 1ST, ROAD, XIII STREET, NANSHAN DISTRICT, SHENZHEN, NA, SHENZHEN, China - 518000
EUT Name:	Smart Watch
Model No:	KW1305
Series Model:	R1C
Brand Name:	
Frequency Range:	2400-2483.5 MHz
Operation frequency:	2402 MHz to 2480 MHz
Modulation Type:	GFSK, $\pi/4$ -DQPSK, 8-DPSK
Modulation Technology:	FHSS
Antenna Gain:	0.5 dBi
BLE Version:	V4.2 BLE
Input Rating :	DC 5V, 1A
Battery:	3.7V DC
Note:	
1.	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

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4 Radio Technical Requirements Specification in EN 300 328

4.1 Transmitter Conditions

Item	EUT Type
1	stand-alone radio equipment with or without their own control provisions;
2	plug-in radio devices intended for use with or within a variety of host systems, e.g. personal computers,hand-held terminals, etc.;
3	plug-in radio devices intended for use within combined equipment, e.g. cable modems, set-top boxes, accesspoints, etc.;
4	Combined equipment or a combination of a plug-in radio device and a specific type of host equipment.

Modulation
FHSS

EUT belongs to item 1 with FHSS modulation.

Test conditions

4.2.1 Normal conditions

Ambient:	Temperature:	+15°C to +35°C
	Relative humidity:	20% to 75%
	Press:	1010 mbar

4.2.2 Extreme conditions



Temperature:	-20°C to +55°C
Power Supply:	3.7V DC

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4.3 Test frequencies

EUT channels and frequencies list:

Description of Channel:			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2456
01	2404	28	2458
02	2406	29	2460
03	2408	30	2462
04	2410	31	2464
05	2412	32	2466
06	2414	33	2468
07	2416	34	2470
08	2418	35	2472
09	2420	36	2474
10	2422	37	2476
11	2424	38	2478
12	2426	39	2480
13	2428		
14	2430		
15	2432		
16	2434		
17	2436		
18	2438		
19	2440		
20	2442		
21	2444		
22	2446		
23	2448		
24	2450		
25	2452		
26	2454		



Test frequencies are the lowest channel: 0 channel(2402MHz), middle channel: 20 channel(2442 MHz) and highest channel: 39 channel(2480 MHz)

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Discipline:- Electronic Testing

Group:- Miscellaneous Products

5 Transmitter Requirements

5.1 RF Output Power

5.1.1 Limit(ETSI EN 300 328, V2.2.2 (2019-07)Clause 4.3.1.2.3)

For non-adaptive frequency hopping systems

The maximum RF output power for non-adaptive Frequency Hopping equipment, shall be declared by the supplier. The maximum RF output power for this equipment shall be equal to or less than the value declared by the supplier. This declared value shall be equal to or less than 20dBm.

For adaptive frequency hopping systems

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20dBm.

5.1.2 TEST SETUP

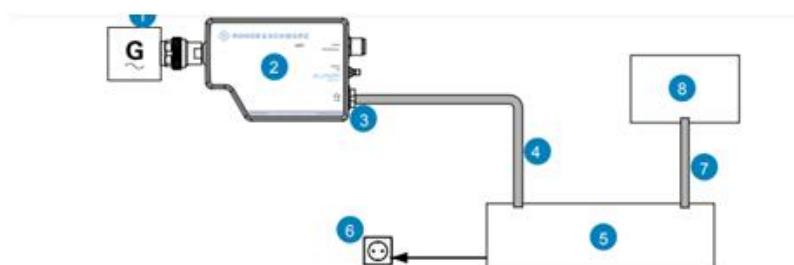




Figure 3-5: Setup with a PoE injector

- 1 = Signal source
- 2 = LAN power sensor
- 3 = RJ-45 Ethernet connector
- 4, 7 = RJ-45 Ethernet cable
- 5 = PoE injector
- 6 = AC supply
- 8 = Controlling host

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5.1.3 Test record

Normal mode:

Measurement Conditions		Test result (dBm)		
Temperature (°C)	Voltage (V DC)	2402 MHz	2442 MHz	2480 MHz
T = -20	$V_{nom} = 3.7$	1.58	1.62	1.87
T = +25	$V_{nom} = 3.7$	1.54	1.69	1.92
T = +55	$V_{nom} = 3.7$	1.58	1.64	1.86
Max RF Output Burst Power(dBm):		1.92		
Antenna Gain(dBi)		0.5		
Max E.I.R.P(dBm)		2.42		
Max E.I.R.P Limit (dBm) as per GSR 45(e)		36		
Test Result (Pass/Fail)		PASS		

Note:E.I.R.P=Max RF Output Burst Power+ Antenna Gain

5.2 Power Spectral Density

5.2.1 Limit(ETSI EN 300 328, V2.2.2/2019-07 Clause 4.3.2.3.3)



Power Spectral Density	
Condition	Limit
For equipment using wide band modulations other than FHSS	≤10 dBm/MHz

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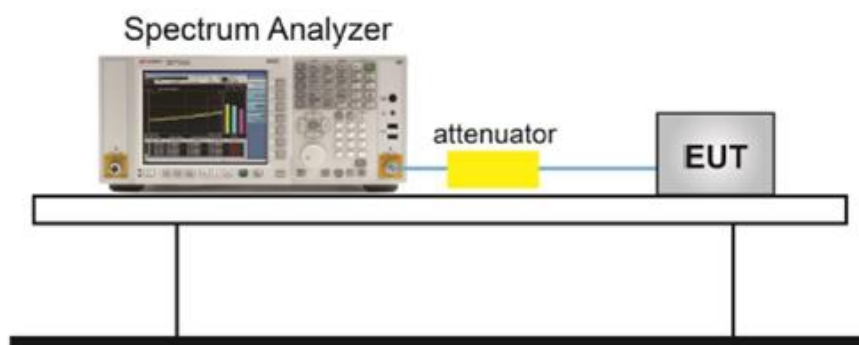
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5.2.2 TEST SETUP



5.2.3 Test result



CHANNEL	CHANNEL FREQUENCY (MHz)	POWER DENSITY (dBm/MHz)	LIMIT (dBm/MHz)	PASS/FAIL
0	2402.00	1.67	10	PASS
20	2442.00	1.63	10	PASS
39	2480.00	1.69	10	PASS

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5.3 Occupied Channel Bandwidth

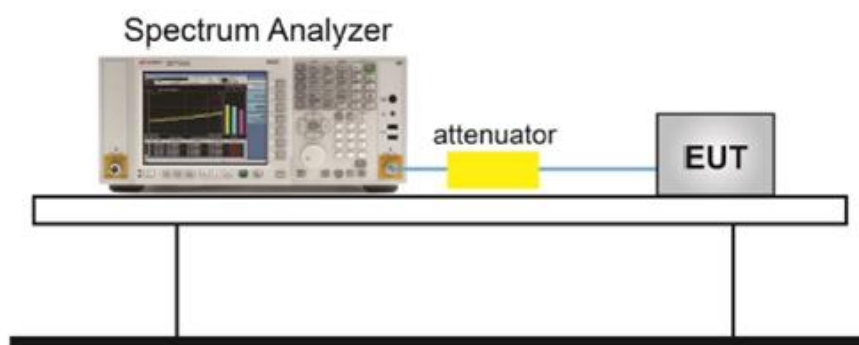
5.3.1 Limit (ETSI EN 300 328, V2.2.2 (2019-07) Clause 4.3.1.8.3)

For non-adaptive Frequency Hopping equipment with E.I.R.P greater than 10dBm, the

Occupied Channel Bandwidth for every occupied hopping frequency shall be equal to or less than the value declared by the supplier. This declared value shall not be greater than 5 MHz.

Remark: These measurements shall only be performed at normal test conditions.

5.3.2 TEST SETUP



5.3.3 Test result

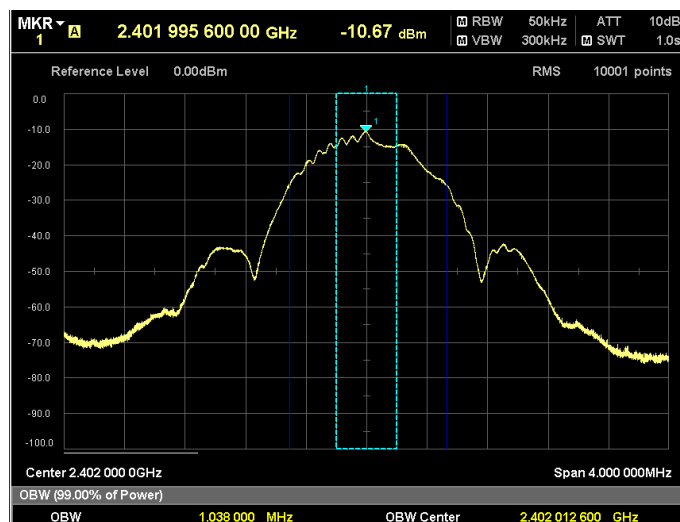
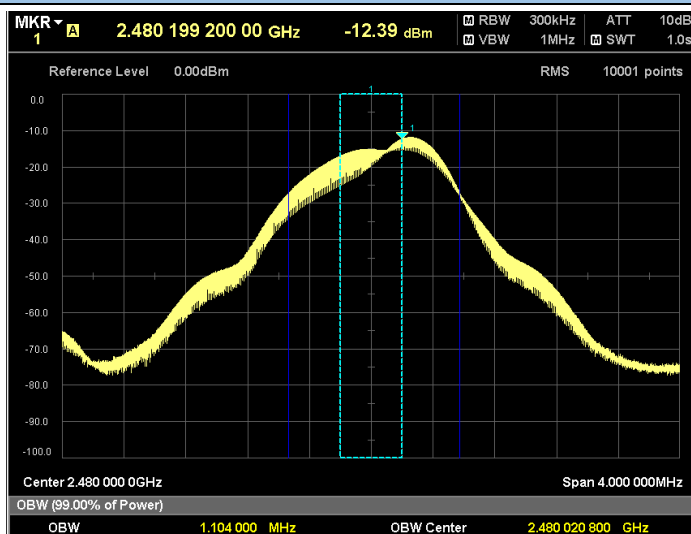
Channel no.	Frequency (MHz)	99% Bandwidth (MHz)	Limit	Result
00	2402	1.213200	Within the band 2400MHz - 2483.5MHz	Pass
39	2480	1.100400		Pass



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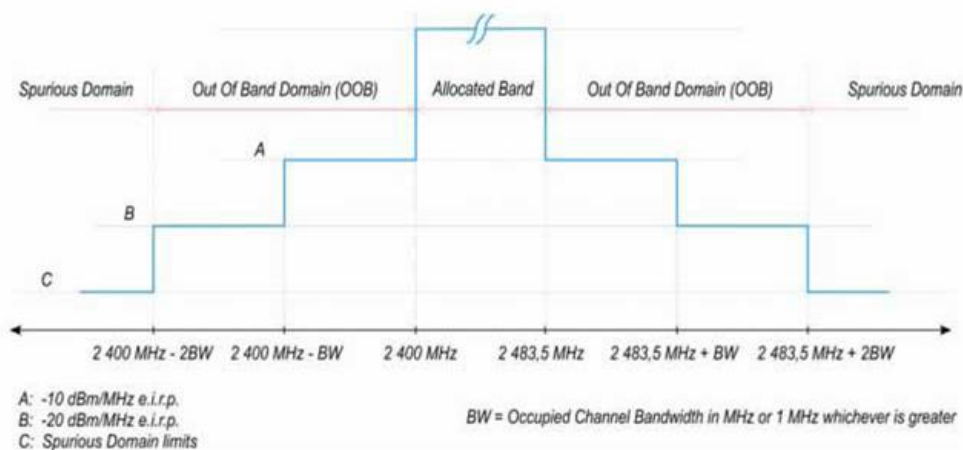
LOW CH

HIGH CH


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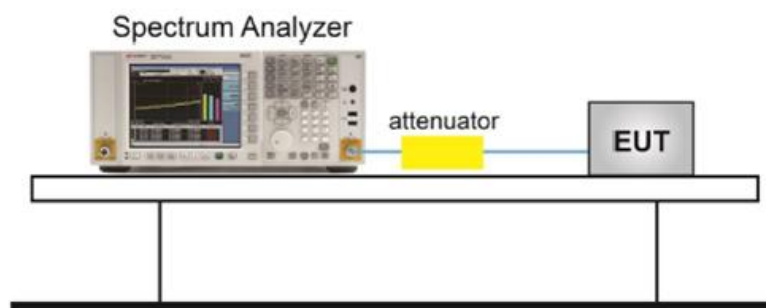
5.4 Transmitter unwanted emissions in the out-of-band domain

5.4.1 Limit(ETSI EN 300 328V2.2.2 (2019-07)Clause 4.3.1.9.3)

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



5.4.2 TEST SETUP





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5.4.3 Test result

Mode 1:DH5

Frequency (MHz)	Test Conditions (°C)	Max measured Values (dBm/MHz)	Limit (dBm/MHz)
2400–2BW~ 2400-BW	25	-44.88	-20
2400–BW~2400	25	-45.82	-10
2483.5~ 2483.5+BW	25	-44.85	-10
2483.5+BW~ 2483.5+2BW	25	-45.88	-20

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5.5 Transmitter unwanted emissions in the spurious domain

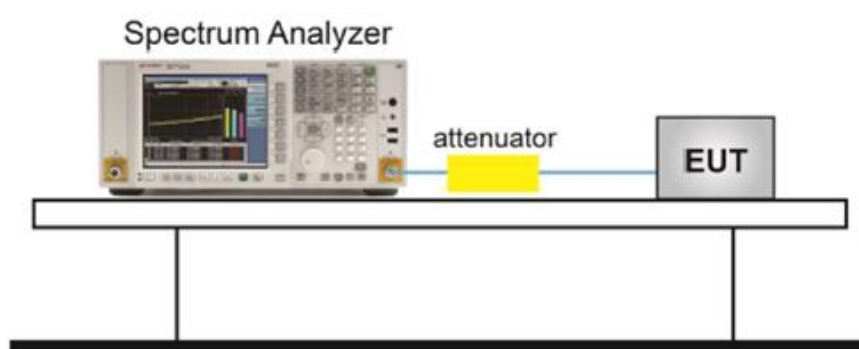
5.5.1 Limit(ETSI EN 300328V2.2.2(2019-07)Clause 4.3.1.10.3)

The transmitter unwanted emissions in the spurious domain shall not exceed the values given in table 1.

Table 1: Transmitter limits for spurious emissions

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

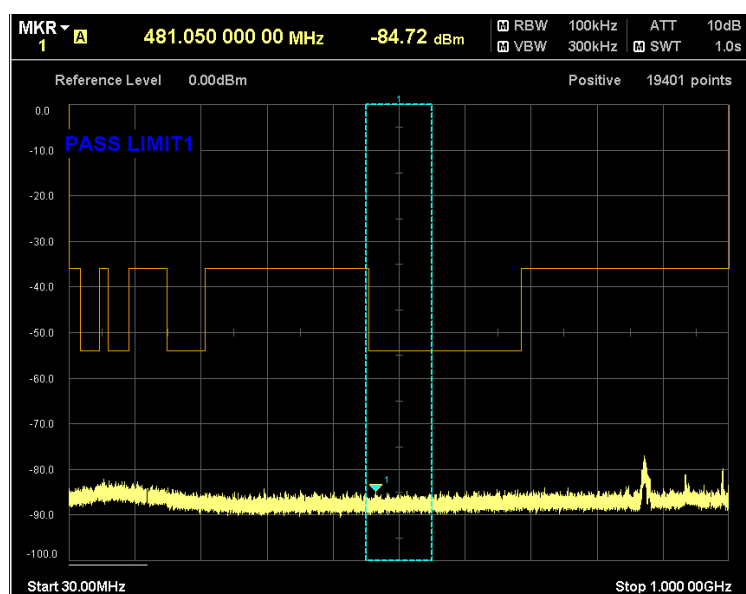
5.5.2 TEST SETUP



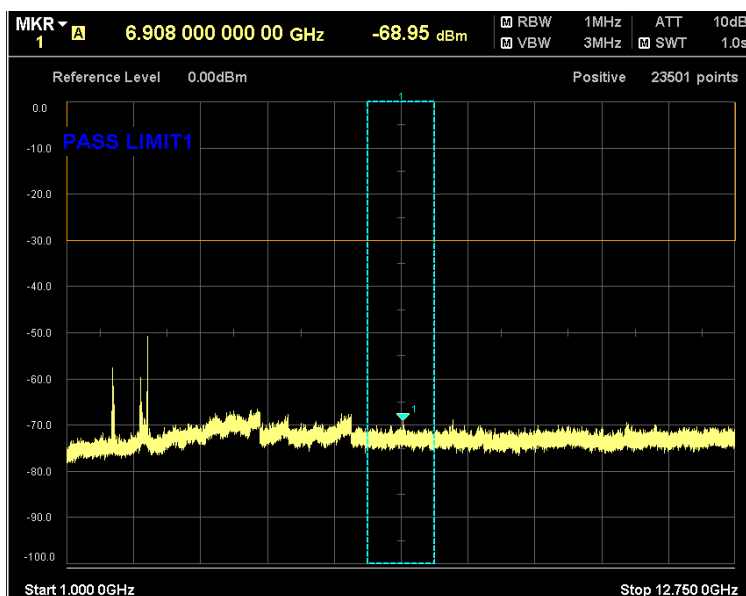
5.5.3 Test result(Conducted measurement)

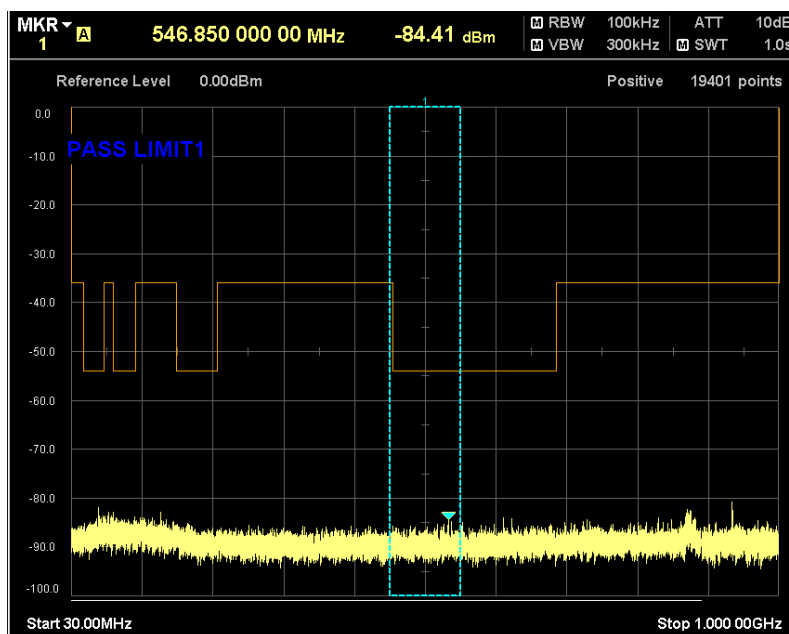
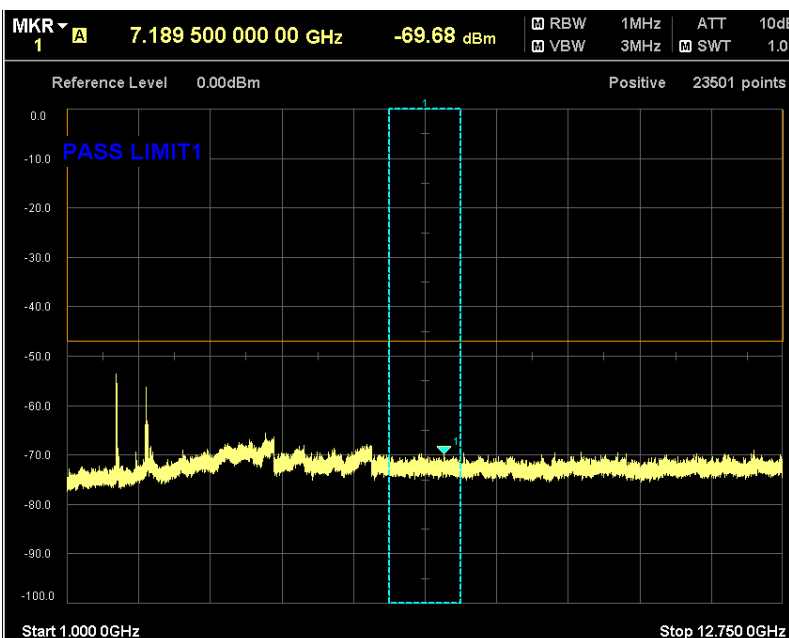
Low CH

30 MHz-1 GHz



1 GHz-12.75 GHz



High Ch
30 MHz-1 GHz

1 GHz-12.75 GHz

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5.6 Receiver spurious emissions

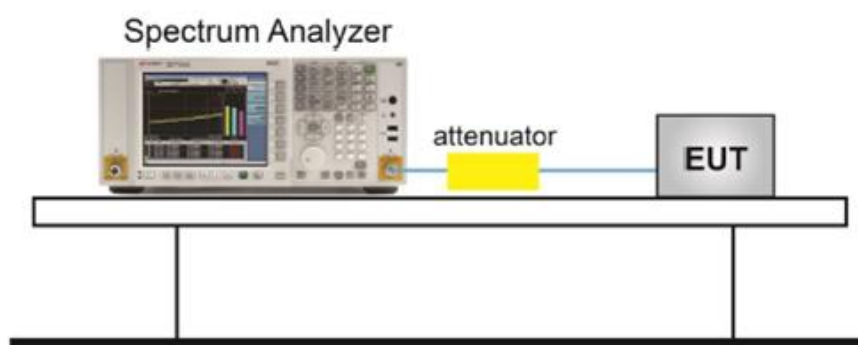
5.6.1 Limit(ETSI EN 300 328, V2.2.2 (2019-07)Clause 4.3.1.11.3)



The spurious emissions of the receiver shall not exceed the values given in table 2.

Spurious emission limits for receivers

Frequency range	Maximum power, e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Bandwidth
30 MHz to 1 GHz	-57 dBm	100KHz
1 GHz to 12,75 GHz	-47 dBm	1MHz

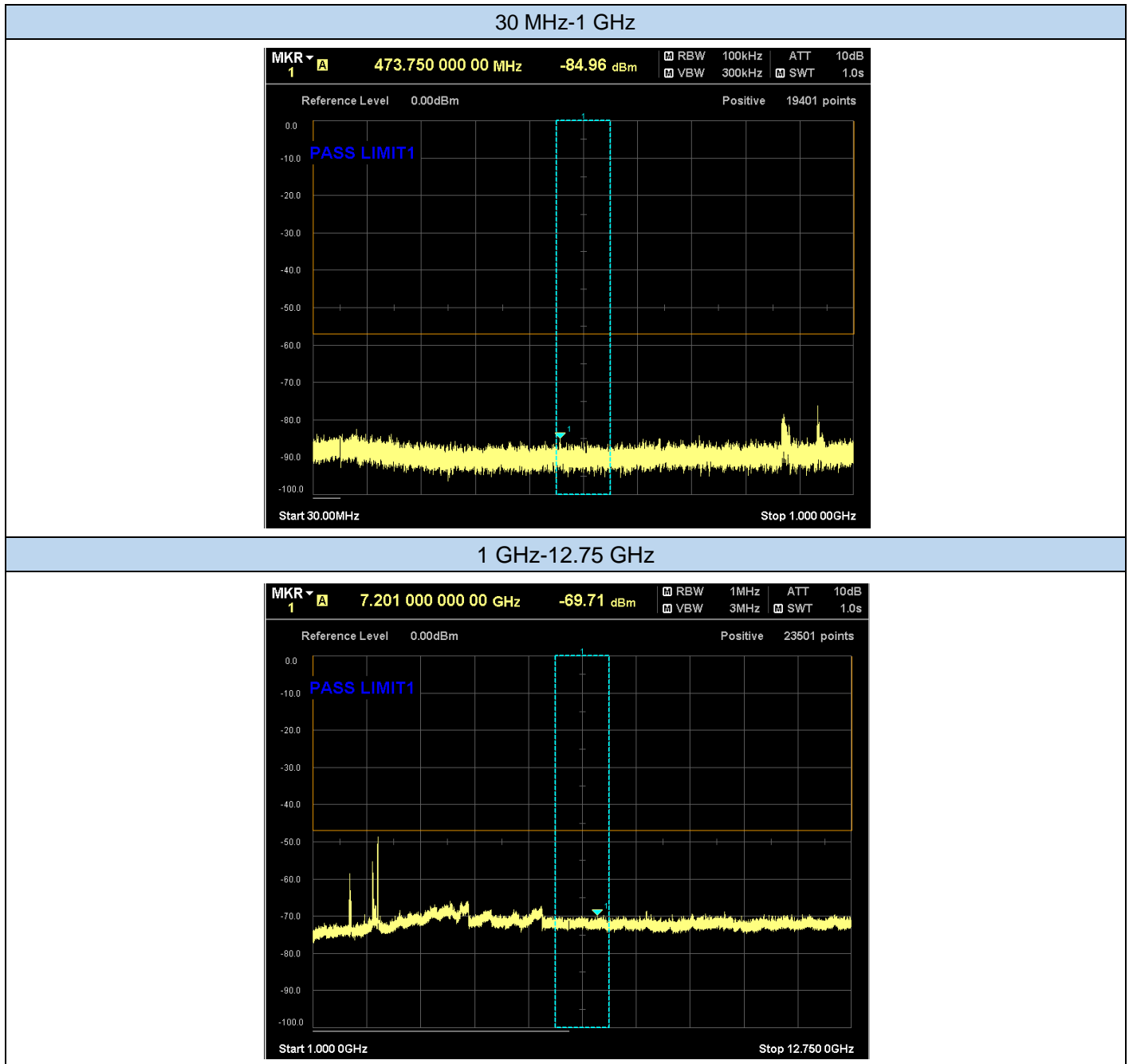
5.6.2 TEST SETUP



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5.6.3 Test results(Conducted measurement)

Low CH

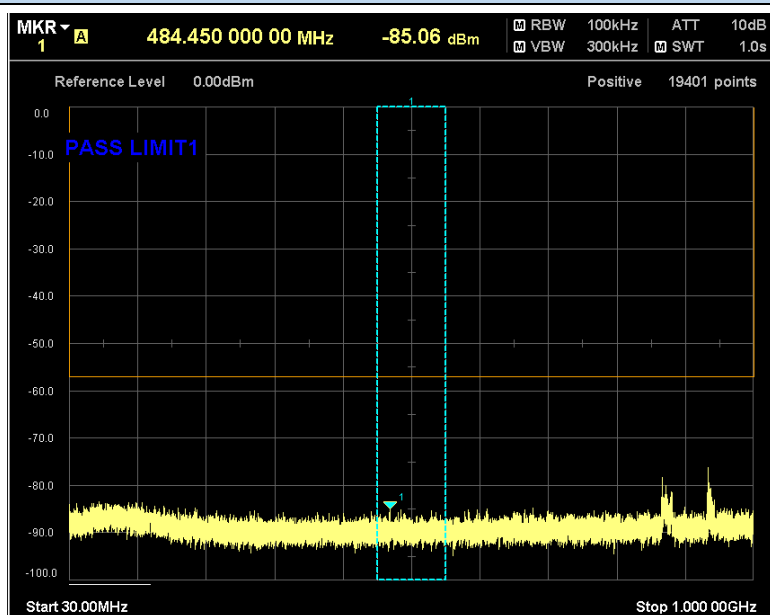
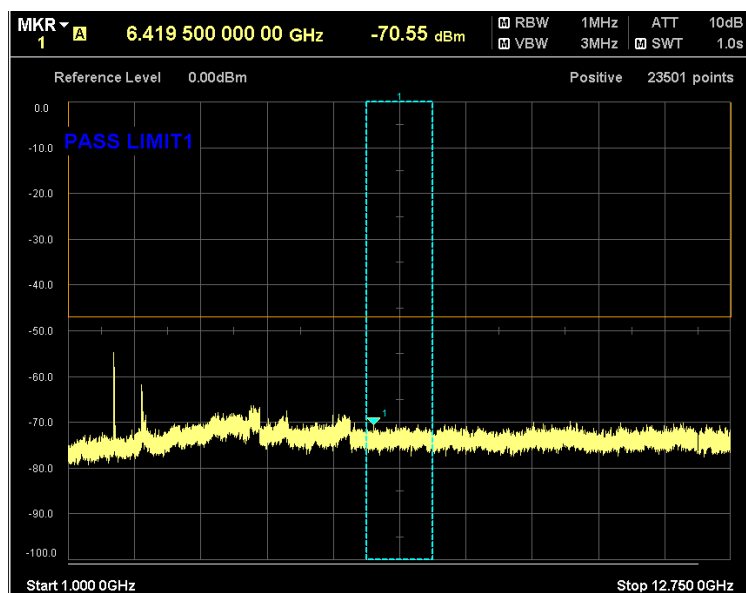




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High CH
30 MHz-1 GHz

1 GHz-12.75 GHz


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6 Photographs



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