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# RF Test Report

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Report No.: AGC03739230301EE23

**PRODUCT DESIGNATION** : Dual Band Digital Two Way Radio  
**BRAND NAME** : VITAI, JUENTAI, ZASTONE  
**MODEL NAME** : VDG-UV008, JD-UV008, ZT-UV008  
**APPLICANT** : VITAI ELECTRONICS CO., LIMITED  
**DATE OF ISSUE** : Apr. 13, 2023  
**STANDARD(S)** : ETSI EN 300 086 V 2.1.2: 2016-08  
: ETSI EN 300 219 V 2.1.1: 2016-08  
**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd  
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: <http://www.agccert.com/>



**REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 13, 2023	Valid	Initial release

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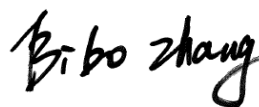
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Tel: +86-755 2523 4088 E-mail: [agc@agccert.com](mailto:agc@agccert.com) Web: <http://www.agccert.com/>

## 1. TEST RESULT CERTIFICATION

<b>Applicant</b>	VITAI ELECTRONICS CO., LIMITED
<b>Address</b>	Room 1901 Buiding 1, Zhongjun Tianfeng,Jiangbinbei Road,Quanzhou,Fujian Province ,China
<b>Manufacturer</b>	VITAI ELECTRONICS CO., LIMITED
<b>Address</b>	Room 1901 Buiding 1, Zhongjun Tianfeng,Jiangbinbei Road,Quanzhou,Fujian Province ,China
<b>Factory</b>	VITAI ELECTRONICS CO., LIMITED
<b>Address</b>	Room 1901 Buiding 1, Zhongjun Tianfeng,Jiangbinbei Road,Quanzhou,Fujian Province ,China
<b>Product Designation</b>	Dual Band Digital Two Way Radio
<b>Brand Name</b>	VITAI, JUENTAI, ZASTONE
<b>Test Model</b>	VDG-UV008
<b>Series Model</b>	JD-UV008, ZT-UV008
<b>Difference Description</b>	Only the model name & brand name are different.
<b>Date of receipt of test item</b>	Mar. 24, 2023
<b>Date of Test</b>	Mar. 24, 2023~Apr. 13, 2023
<b>Test Result</b>	Pass

The above equipment was tested by Attestation of Global Compliance Science & Technology Co.,Ltd for compliance with the requirements set forth in the European Standard ETSI EN 300 086 and ETSI EN 300 219. The results of testing in this report apply to the product /system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared By



Bibo Zhang  
(Project Engineer)

Apr. 13, 2023

Reviewed By



Calvin Liu  
(Reviewer)

Apr. 13, 2023

Approved By



Max Zhang  
Authorized Officer

Apr. 13, 2023

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## 2. EUT DESCRIPTION

<b>Product Designation</b>	Dual Band Digital Two Way Radio
<b>Brand Name</b>	VITAI, JUENTAI, ZASTONE
<b>Model Name</b>	VDG-UV008
<b>Hardware Version</b>	LD8800DF697
<b>Software Version</b>	V1.02.03.1007
<b>Operation Frequency</b>	From 136MHz to 174MHz VHF From 400MHz to 480MHz UHF
<b>Modulation</b>	F3E
<b>Operation Mode</b>	Push to talk
<b>Channel Separation</b>	12.5KHz
<b>Rated Output Power</b>	5W(It was fixed by the manufacturer, any individual can't arbitrarily change it.)
<b>Antenna Designation</b>	Detachable
<b>Antenna Gain</b>	1.5dBi
<b>Power Supply</b>	DC 7.4V, 2500mAh by battery, Charger for 8.4V
<b>Test Frequencies</b>	137.025MHz, 155.025MHz, 173.975MHz 400.025MHz, 430.025MHz, 450.025MHz ,479.975MHz (Near lowest, near middle& near highest frequencies in the frequency range of operation)

**Note:** For more details, please refer to the user's manual of the EUT.

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### 3. TEST METHODOLOGY

#### 3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:

According to its specifications, the EUT must comply with the requirements of the following standards:  
ETSI EN 300 086 V2.1.2–Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 300 219 V2.1.1-Land Mobile Service; Radio equipment transmitting signals to initiate a specific response in the receiver; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

#### 3.2 DESCRIPTION OF TEST MODES

The EUT has been tested under typical operating condition. No software used to control the EUT for staying in transmitting and receiving mode for testing.

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## 4. FACILITIES AND ACCREDITATIONS

### 4.1 FACILITIES

<b>Site</b>	Attestation of Global Compliance (Shenzhen) Co., Ltd
<b>Location</b>	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen, Guangdong, China

### 4.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods.



## 5. SETUP OF EQUIPMENT UNDER TEST

### 5.1 SETUP CONFIGURATION OF EUT

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

### 5.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1	--	--	--	--	--	--

**Notes:**

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.

## 6. ETSI EN 300 086 REQUIREMENTS FOR TRANSMITTER

### 6.1 FREQUENCY ERROR

#### LIMIT

#### ETSI EN 300 086 (V2.1.2) Sub-clause 7.1.3

The frequency error, as defined in EN 300 086 sub-clause 7.1.1, shall not exceed the limits in EN 300 086 sub-clause 7.1.3, table 1.

Channel separation (kHz)	Frequency error limit (kHz)				
	below 47 MHz	47 MHz to 137 MHz	above 137 MHz to 300 MHz	above 300 MHz to 500 MHz	above 500 MHz to 1 000 MHz
20 and 25	±0,60	±1,35	±2,00	±2,00	±2,50 (a)
12,5	±0,60	±1,00	±1,00 (B) ±1,50 (M)	±1,00 (B) ±1,50 (a) (M)	±1,5 (B) ±2,5 (a) (M)

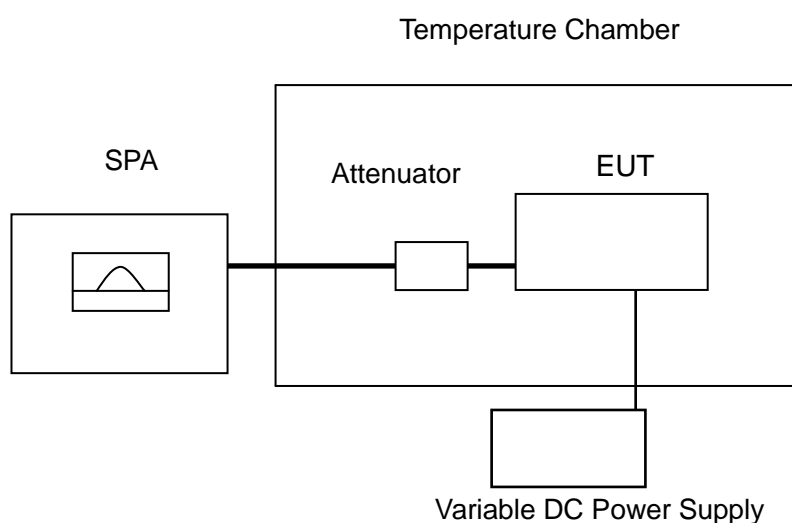
NOTE: (B) = base station.  
(M) = mobile or hand portable station.  
(a) = for hand portable stations having integral power supplies, the frequency error shall not be exceeded over a temperature range of 0 °C to + 40 °C.  
Under extreme temperature conditions (clause 5.4.1), the frequency error shall not exceed ±2,50 kHz for a channel separation of 12,5 kHz between 300 MHz and 500 MHz, and ±3,00 kHz for channel separations of 20 kHz and 25 kHz between 500 MHz and 1 000 MHz.

#### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
POWER ATTENUATOR	WEINSCHEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
H & T CHAMBER	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023

**Remark:** Each piece of equipment is scheduled for calibration once a year.

#### TEST CONFIGURATION



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## TEST PROCEDURE

- Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 and Sub-clause 5.4 for the test conditions.
- Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.1.2 for the measurement method.

## TEST RESULTS

VHF:

### The Bottom Channel (137.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Frequency Measured	Frequency Error
Temperature ( °C )	Voltage ( V )	(MHz)	( KHz )
T Nor ( 25°C )	DC 7.40V	136.025412	0.412
T min ( -10°C )	DC 6.29V	136.025425	0.425
	DC 7.40V	136.025534	0.534
T Max ( 40°C )	DC 6.29V	136.025318	0.318
	DC 7.40V	136.025502	0.502
Limit		Normal temperature: $\pm 1.50$ KHz @ 136.025MHz	
		Extreme temperature: $\pm 2.50$ KHz @ 136.025MHz	
Result		Pass	

### The Middle Channel (155.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Frequency Measured	Frequency Error
Temperature ( °C )	Voltage ( V )	(MHz)	( KHz )
T Nor ( 25°C )	DC 7.40V	155.025429	0.429
T min ( -10°C )	DC 6.29V	155.025061	0.061
	DC 7.40V	155.025433	0.433
T Max ( 40°C )	DC 6.29V	155.025169	0.169
	DC 7.40V	155.025742	0.742
Limit		Normal temperature: $\pm 1.50$ KHz @ 155.025MHz	
		Extreme temperature: $\pm 2.50$ KHz @ 155.025MHz	
Result		Pass	

### The Top Channel (173.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Frequency Measured	Frequency Error
Temperature ( °C )	Voltage ( V )	(MHz)	( KHz )
T Nor ( 25°C )	DC 7.40V	173.975338	0.338
T min ( -10°C )	DC 6.29V	173.975415	0.415
	DC 7.40V	173.975362	0.362
T Max ( 40°C )	DC 6.29V	173.975311	0.311
	DC 7.40V	173.975437	0.437
Limit		Normal temperature: $\pm 1.50$ KHz @ 173.975MHz	
		Extreme temperature: $\pm 2.50$ KHz @ 173.975MHz	
Result		Pass	

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UHF:

**The Bottom Channel (400.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Frequency Measured (MHz)	Frequency Error ( KHz )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	400.025416	0.416
T min ( -10°C )	DC 6.29V	400.025525	0.525
	DC 7.40V	400.025364	0.364
T Max ( 40°C )	DC 6.29V	400.025449	0.449
	DC 7.40V	400.025634	0.634
Limit		Normal temperature: ±1.50KHz @ 400.025MHz	
		Extreme temperature: ±2.50KHz @400.025MHz	
Result		Pass	

**The Middle Channel (430.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Frequency Measured (MHz)	Frequency Error ( KHz )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	435.025496	0.496
T min ( 0°C )	DC 6.29V	435.025251	0.251
	DC 7.40V	435.025309	0.309
T Max ( 40°C )	DC 6.29V	435.025528	0.528
	DC 7.40V	435.025311	0.311
Limit		Normal temperature: ±1.50KHz @ 435.025MHz	
		Extreme temperature: ±2.50KHz @ 435.025MHz	
Result		Pass	

**The Middle Channel (440.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Frequency Measured (MHz)	Frequency Error ( KHz )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	440.025341	0.341
T min ( 0°C )	DC 6.29V	440.025258	0.258
	DC 7.40V	440.025417	0.417
T Max ( 40°C )	DC 6.29V	440.025669	0.669
	DC 7.40V	440.025558	0.558
Limit		Normal temperature: ±1.50KHz @ 440.025MHz	
		Extreme temperature: ±2.50KHz @ 440.025MHz	
Result		Pass	

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### **The Middle Channel (450.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Frequency Measured (MHz)	Frequency Error ( KHz )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	450.025436	0.436
T min ( 0°C )	DC 6.29V	450.025319	0.319
	DC 7.40V	450.025625	0.625
T Max ( 40°C )	DC 6.29V	450.025261	0.261
	DC 7.40V	450.025394	0.394
Limit		Normal temperature: $\pm 1.50\text{KHz}$ @ 450.025MHz	
		Extreme temperature: $\pm 2.50\text{KHz}$ @ 450.025MHz	
Result		Pass	

### **The Top Channel (479.975MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Frequency Measured (MHz)	Frequency Error ( KHz )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	479.975336	0.336
T min ( -10°C )	DC 6.29V	479.975415	0.415
	DC 7.40V	479.975559	0.559
T Max ( 40°C )	DC 6.29V	479.975451	0.451
	DC 7.40V	479.975332	0.332
Limit		Normal temperature: $\pm 1.50\text{KHz}$ @ 479.975MHz	
		Extreme temperature: $\pm 2.50\text{KHz}$ @ 479.975MHz	
Result		Pass	

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## 6.2 TRANSMITTER POWER (CONDUCTED)

### LIMIT

#### ETSI EN 300 086 (V2.1.2) Sub-clause 7.2.3

The transmitter power (conducted) as defined in ETSI EN 300 086 Sub-clause 7.2.1 under the specified conditions of measurement and at normal test conditions shall be within  $\pm 1.5$  dB of the rated output power. Furthermore, the carrier power (conducted) shall not exceed the maximum value allowed by the Administrations.

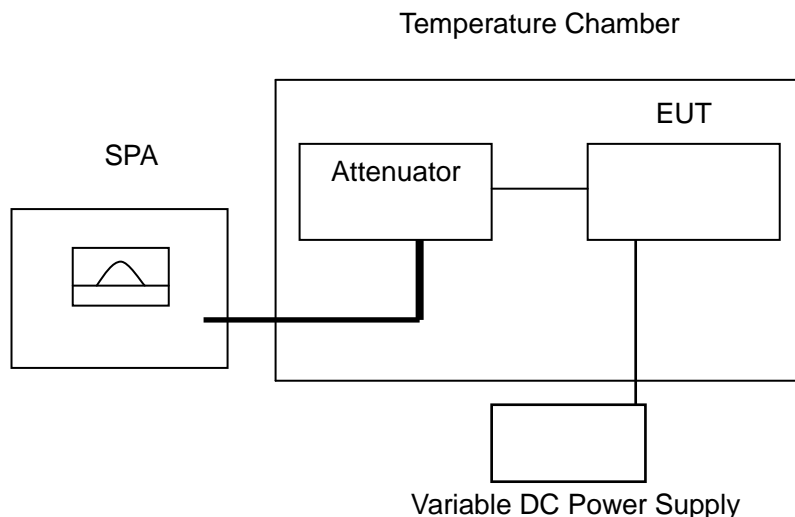
The transmitter power (conducted) under extreme test conditions shall be within +2.0dB and -3.0dB of the rated output power.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
POWER ATTENUATOR	WEINSCHEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
H & T CHAMBER	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023

**Remark:** Each piece of equipment is scheduled for calibration once a year.

### TEST CONFIGURATION



### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 and 6.4 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.2.2 for the measurement method.

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## TEST RESULTS

VHF:

### The Bottom Channel (137.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.79	-0.20
T min ( -10°C )	DC 6.29V	36.58	-0.41
	DC 7.40V	36.61	-0.38
T Max ( 40°C )	DC 6.29V	36.66	-0.33
	DC 7.40V	36.65	-0.34
Nominal Power=38.45dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

### The Middle Channel (155.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.92	-0.07
T min ( -10°C )	DC 6.29V	36.84	-0.15
	DC 7.40V	36.88	-0.11
T Max ( 40°C )	DC 6.29V	36.82	-0.17
	DC 7.40V	36.85	-0.14
Nominal Power=36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

### The Top Channel (173.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.59	-0.40
T min ( -10°C )	DC 6.29V	36.55	-0.44
	DC 7.40V	36.54	-0.45
T Max ( 40°C )	DC 6.29V	36.58	-0.41
	DC 7.40V	36.51	-0.48
Nominal Power=36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

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UHF:

**The Bottom Channel (400.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.56	-0.43
T min ( -10°C )	DC 6.29V	36.51	-0.48
	DC 7.40V	36.55	-0.44
T Max ( 40°C )	DC 6.29V	36.52	-0.47
	DC 7.40V	36.50	-0.49
Nominal Power= 36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

**The Middle Channel (430.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.55	-0.44
T min ( -10°C )	DC 6.29V	36.49	-0.50
	DC 7.40V	36.52	-0.47
T Max ( 40°C )	DC 6.29V	36.53	-0.46
	DC 7.40V	36.51	-0.48
Nominal Power= 36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

**The Middle Channel (440.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.58	-0.41
T min ( -10°C )	DC 6.29V	36.51	-0.48
	DC 7.40V	36.55	-0.44
T Max ( 40°C )	DC 6.29V	36.52	-0.47
	DC 7.40V	36.53	-0.46
Nominal Power= 36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

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### **The Middle Channel (450.025MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.73	-0.26
T min ( -10°C )	DC 6.29V	36.71	-0.28
	DC 7.40V	36.59	-0.40
T Max ( 40°C )	DC 6.29V	36.66	-0.33
	DC 7.40V	36.68	-0.31
Nominal Power= 36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

### **The Middle Channel (479.975MHz) of 12.5 KHz Channel Separation-5W**

Test Condition		Power Measured	Power Error
Temperature ( °C )	Voltage ( V )	( dBm )	( dB )
T Nor ( 25°C )	DC 7.40V	36.55	-0.44
T min ( -10°C )	DC 6.29V	36.54	-0.45
	DC 7.40V	36.52	-0.47
T Max ( 40°C )	DC 6.29V	36.53	-0.46
	DC 7.40V	36.45	-0.54
Nominal Power= 36.99dBm; Limit n=±1.5 dB and Limit e=2 dB & -3 dB			
Result		Pass	

NOTE: According to ETSI EN 300 086 V2.1.2 (2016-08) clause 5.4.2.3, for the nickel metal-hydride, leclanché or lithium type battery, No upper extreme test voltages apply. In the case where no upper extreme test voltage the nominal voltage is applicable, so I think DC 7.4V with the upper extreme test voltage.

**6.3 MAXIMUM EFFECTIVE RADIATED POWER (NOT APPLICABLE TO DEVICE WITH EXTERNAL RF PORT)**

**LIMIT**

N/A

**MEASUREMENT EQUIPMENT USED**

N/A

**TEST PROCEDURE**

N/A

**TEST CONFIGURATION**

N/A

**TEST RESULTS**

N/A

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Attestation of Global Compliance(Shenzhen)Co., Ltd

Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

Tel: +86-755 2523 4088 E-mail: [agc@agccert.com](mailto:agc@agccert.com) Web: <http://www.agccert.com/>

## 6.4 FREQUENCY DEVIATION

### LIMIT

#### **ETSI EN 300 086 (V2.1.2) Sub-clause 7.4.1**

The maximum permissible frequency deviation as defined in Sub-clause 7.2.1 for modulation frequencies from the lowest frequency transmitted ( $f_1$ ) by the equipment (as declared by the manufacturer) up to ( $f_2$ ) shall be as given in table 2.

Table 2

Channel separation ( KHz )	Maximum permissible frequency deviation (kHz)
12.5 kHz	$\pm 2.5$ kHz
20 kHz	$\pm 4$ kHz
25 kHz	$\pm 5$ kHz

The level of this test signal shall be 20 dB above the level of the normal test modulation, for normal test modulation, the modulation frequency shall be 1 kHz and the resultant frequency deviation shall be 60 % of the maximum permissible frequency deviation

#### **ETSI EN 300 086 (V2.1.2) Sub-clause 7.4.2.1**

T for normal test modulation, the modulation frequency shall be 1 kHz and the resultant frequency deviation shall be

60 % of the maximum permissible frequency deviation.

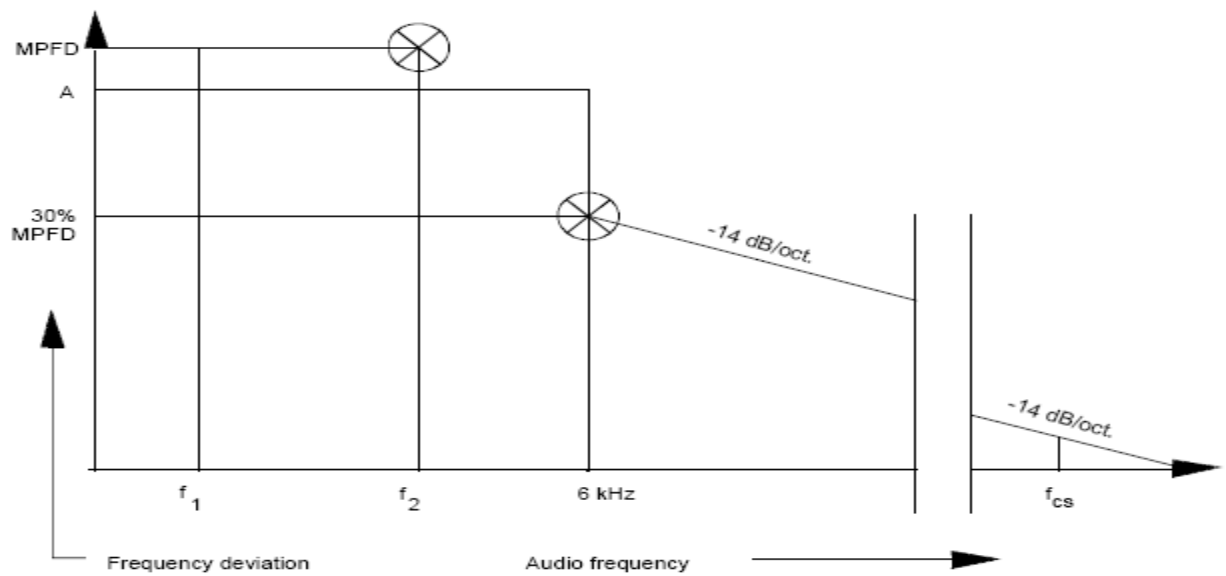
The frequency deviation at modulation frequencies between 3.0 KHz

(for equipment operating with 20 KHz or 25 KHz channel separations) and 2.55 KHz

(for equipment operating with 12.5 KHz channel separation) and 6.0 KHz shall not exceed

the frequency deviation at a modulation frequency of 3.0 KHz/2.55 KHz. At 6.0 KHz the deviation shall be not more than 30% of the maximum permissible frequency deviation.

The frequency deviation at modulation frequencies between 6.0 KHz and a frequency equal to the channel separation for which the equipment is intended shall not exceed that given by a linear representation of the frequency deviation (dB) relative to the modulation frequency, starting at the 6.0 KHz limit and having a slope of -14.0 dB per octave. These limits are illustrated in figure below.



NOTE: Abbreviations:  
 $f_1$  = lowest appropriate frequency  
 $f_2$  = 3,0 kHz (for 20 kHz or 25 kHz channel separation), or  
 2,55 kHz (for 12,5 kHz channel separation)  
 MPFD = Maximum Permissible Frequency Deviation, see clause 7.4.3.1  
 A = measured frequency deviation at  $f_2$   
 $f_{cs}$  = frequency equal to channel separation

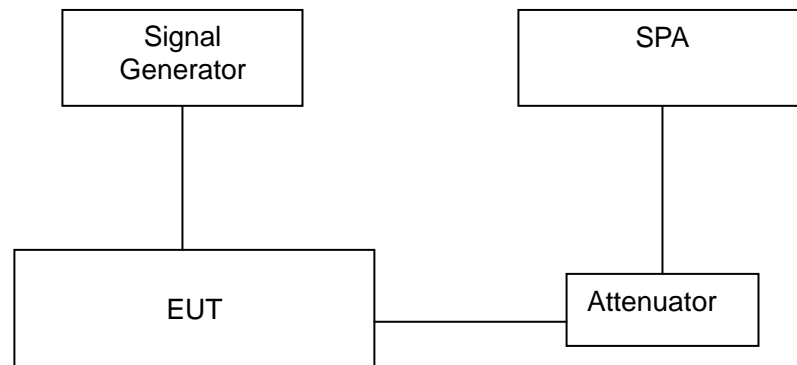
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Attestation of Global Compliance(Shenzhen)Co., Ltd  
 Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd  
 Tel: +86-755 2523 4088 E-mail: [agc@agccert.com](mailto:agc@agccert.com) Web: <http://www.agccert.com/>

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
SIGNAL GENERATOR	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024
POWER ATTENUATOR	WEINSCHTEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
RF Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023

### TEST CONFIGURATION



### TEST PROCEDURE

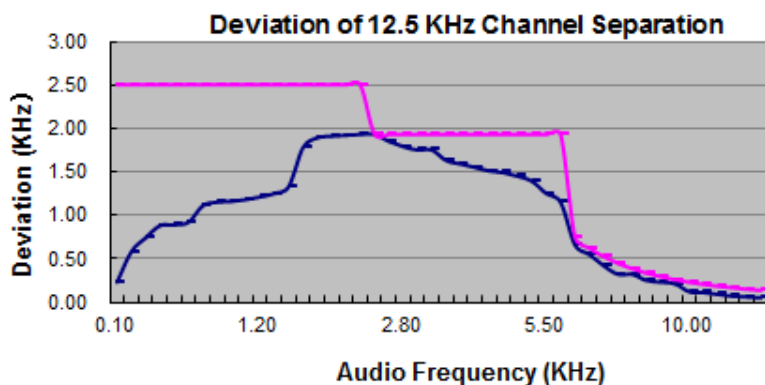
1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.2.2 for the measurement method.

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## TEST RESULTS

### The Bottom Channel @ 12.5 KHz Channel Separation-5W (Worst Case)

Audio Frequency (KHz)	Test Value (KHz)	Limit (KHz)	Audio Frequency (KHz)	Test Value (KHz)	Limit (KHz)
0.10	0.23	2.50	5.50	1.25	1.93
0.20	0.58	2.50	6.00	1.15	1.93
0.30	0.74	2.50	6.00	0.66	0.75
0.40	0.88	2.50	6.50	0.55	0.62
0.50	0.89	2.50	7.00	0.42	0.52
0.60	0.92	2.50	7.50	0.32	0.45
0.70	1.11	2.50	8.00	0.32	0.38
0.80	1.15	2.50	8.50	0.25	0.33
0.90	1.16	2.50	9.00	0.23	0.29
1.00	1.18	2.50	9.50	0.21	0.26
1.20	1.21	2.50	10.00	0.12	0.23
1.40	1.25	2.50	10.50	0.11	0.20
1.60	1.33	2.50	11.00	0.09	0.18
1.80	1.78	2.50	11.50	0.07	0.17
2.00	1.89	2.50	12.00	0.06	0.15
2.20	1.91	2.50	12.50	0.05	0.14
2.40	1.92	2.50			
2.55	1.93	2.50			
Limit(2.6K-6K)=Value measured at 2.55K					
2.55	1.93	1.93			
2.60	1.85	1.93			
2.80	1.79	1.93			
3.00	1.75	1.93			
3.20	1.63	1.93			
3.40	1.59	1.93			
3.60	1.55	1.93			
3.80	1.51	1.93			
4.00	1.49	1.93			
4.50	1.45	1.93			
5.00	1.39	1.93			



### Note: Above is worst condition mode.

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Attestation of Global Compliance(Shenzhen)Co., Ltd

Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: <http://www.agccert.com/>

## 6.5 ADJACENT AND ALTERNATE CHANNEL POWER IN EN 300 086

### LIMIT

#### **ETSI EN 300 086 (V2.1.2) Sub-clause 7.5.3**

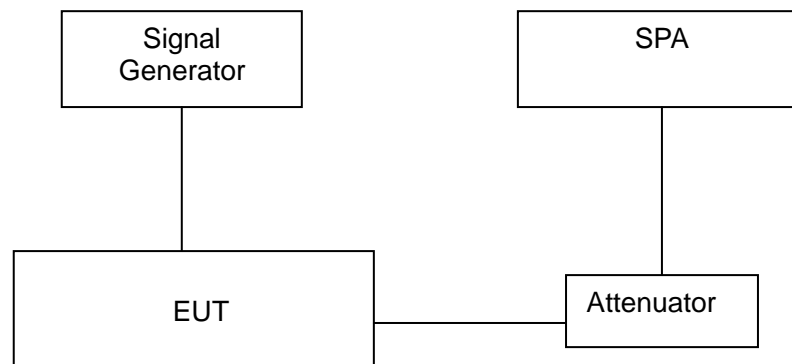
The adjacent and alternate channel power as defined in ETSI EN 300 086 Sub-clause 7.5.1, for channel separations of 12.5 KHz, 20 KHz and 25 KHz, the adjacent channel power shall not exceed a value of 60.0 dB below the transmitter power of the transmitter without the need to be below 0.2 uW.

For channel separations of 12.5 KHz, 20 KHz and 25 KHz, the alternate channel power shall not exceed a value of 70.0 dB below the transmitter power of the transmitter without the need to be below 0.2 uW.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
SIGNAL GENERATOR	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024
POWER ATTENUATOR	WEINSCHEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023

### TEST CONFIGURATION



### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.5.2 for the measurement method.

### TEST RESULTS

#### Test Result of Adjacent Channel Power:

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**VHF:**
The Bottom Channel (137.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	62.5
		-8.25 KHz	62.6
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel of (155.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	61.9
		-8.25 KHz	63.6
Applicable Limit		60 dBc	
Result		Pass	

The Top Channel of (173.975MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	63.3
		-8.25 KHz	64.5
Applicable Limit		60 dBc	
Result		Pass	

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**UHF:**
The Top Channel (479.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	63.4
		-8.25 KHz	64.5
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel of (450.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	63.4
		-8.25 KHz	64.9
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel of (440.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( ℃ )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	61.6
		-8.25 KHz	63.4
Applicable Limit		60 dBc	
Result		Pass	

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The Middle Channel (430.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	63.3
		-8.25 KHz	64.5
Applicable Limit		60 dBc	
Result		Pass	

The Bottom Channel of (400.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	64.6
		-8.25 KHz	65.0
Applicable Limit		60 dBc	
Result		Pass	

**Test Result of Alternate Channel Power:**

**VHF:**

The Bottom Channel of (137.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40V )	+20.75 KHz	73.3
		-20.75 KHz	74.2
Applicable Limit		70 dBc	
Result		Pass	

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The Middle Channel (155.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40V )	+20.75 KHz	73.3
		-20.75 KHz	74.6
Applicable Limit		70 dBc	
Result		Pass	

The Top Channel (173.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40V )	+20.75 KHz	72.1
		-20.75 KHz	73.0
Applicable Limit		70 dBc	
Result		Pass	

**UHF:**

The Top Channel of (479.975MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40 )	+20.75 KHz	73.6
		-20.75 KHz	74.5
Applicable Limit		70 dBc	
Result		Pass	

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The Middle Channel (450.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40 )	+20.75 KHz	72.5
		-20.75 KHz	73.4
Applicable Limit		70 dBc	
Result		Pass	

The Middle Channel (440.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40 )	+20.75 KHz	72.9
		-20.75 KHz	73.0
Applicable Limit		70 dBc	
Result		Pass	

The Middle Channel (430.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40 )	+20.75 KHz	73.3
		-20.75 KHz	74.1
Applicable Limit		70 dBc	
Result		Pass	

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The Bottom Channel (400.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Alternate Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	V Nor ( 7.40 )	+20.75 KHz	73.9
		-20.75 KHz	74.6
Applicable Limit		70 dBc	
Result		Pass	

**THE RESULTS: PASS**

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## 6.6 UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN IN EN 300 086

### LIMIT

#### ETSI EN 300 086 (V2.1.2) Sub-clause 7.6.4

Spurious emission as defined in ETSI EN 300 086 Sub-clause 7.6.1, the power of any spurious emission shall not exceed the values given in table 3 and table 4

Table 3: Conducted emissions

Frequency Range	9 KHz to 1GHz	Above 1GHz to 4GHz, or above 1GHz to 12.75GHz
TX Operating	0.25 $\mu$ W (-36 dBm )	1.00 $\mu$ W ( -30 dBm )
TX Standby	2.0nW (-57 dBm )	20.00nW (-47.0 dBm)

Table 4: Radiated emissions

Frequency Range	30 MHz to 1GHz	Above 1GHz to 4GHz or above 1 GHz to 12.75GHz
TX Operating	0.25 $\mu$ W (-36 dBm )	1.00 $\mu$ W ( -30 dBm )
TX Standby	2.0nW (-57 dBm )	20.00nW (-47.0 dBm)

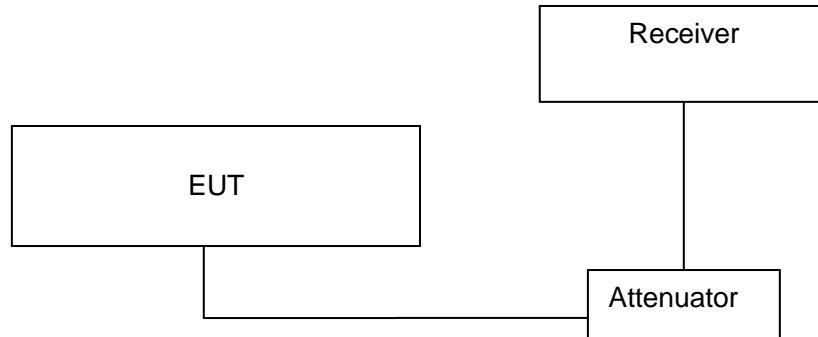
### MEASUREMENT EQUIPMENT USED

Radiated Emission Test Site # 4					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI TEST RECEIVER	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
AMPLIFIER	Schwarzbeck	BBV 9718	9718-162	Jun. 06, 2022	Jun. 05, 2023
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
ATTENUATOR	WEINSCHTEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
ANTENNA	R&S	VULB9168	D69250	Apr. 28, 2021	Apr. 27, 2023
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023

**Remark:** Each piece of equipment is scheduled for calibration once a year. Expect for the antenna was once two years.

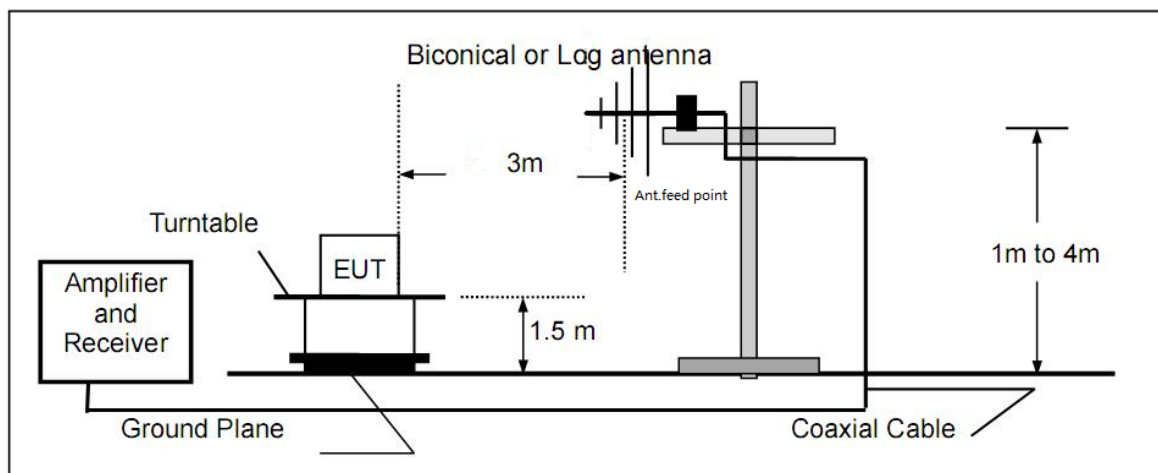
## TEST CONFIGURATION

### Conducted Measurement (9 KHz to 12.75GHz)



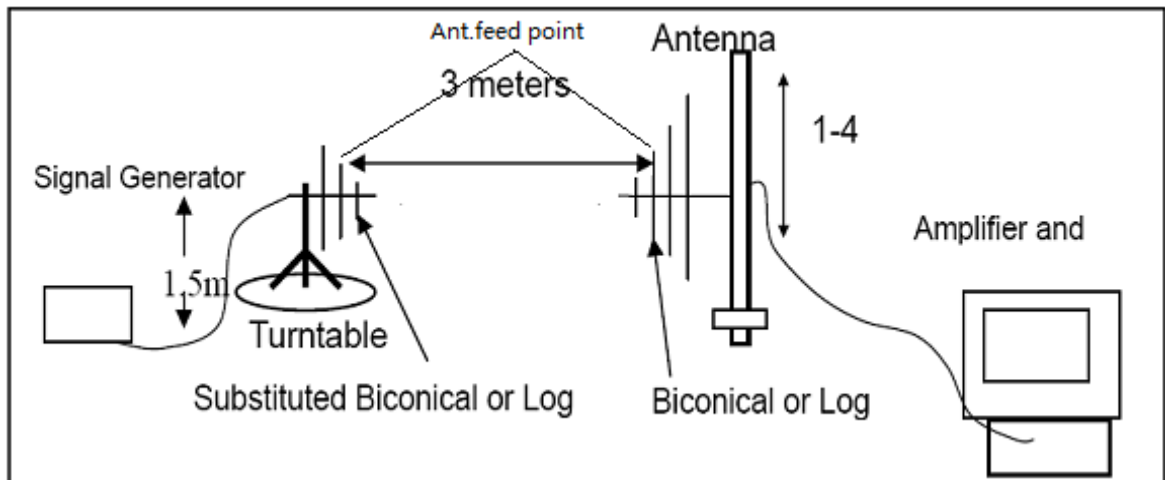
### Effective Radiated Power measurement (30MHz to 12.75GHz)

#### RADIATED BELOW 1GHZ

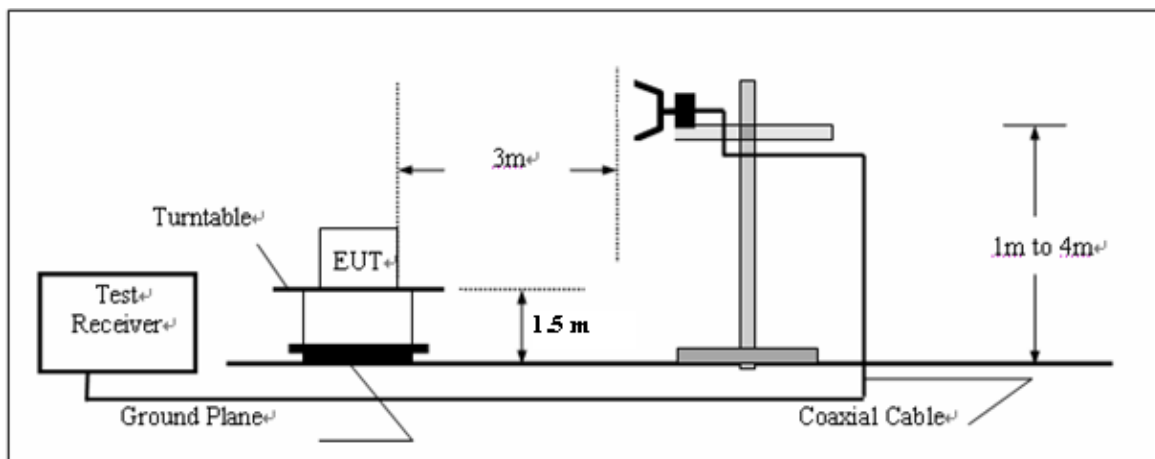


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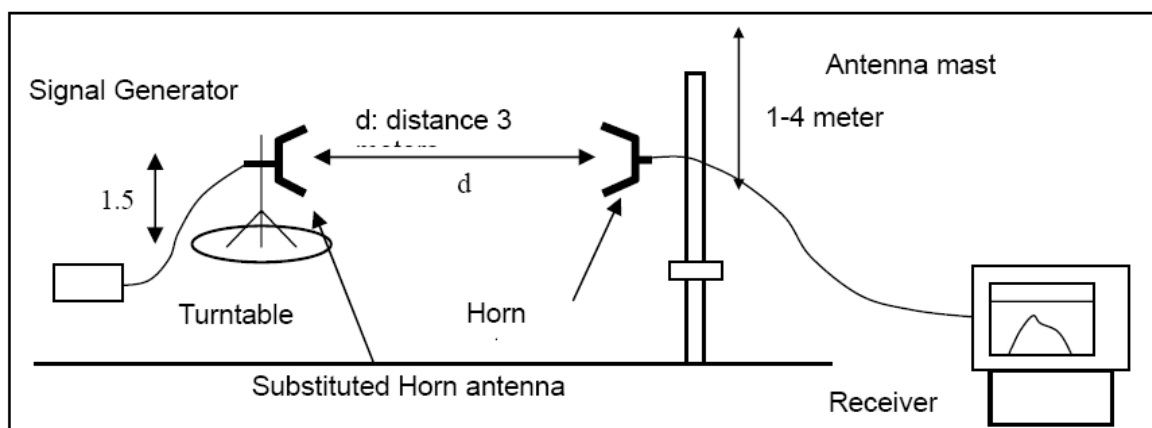
### SUBSTITUTION METHOD: (RADIATED EMISSIONS)



### RADIATED EMISSION TEST SETUP UP ABOVE 1000MHZ



### SUBSTITUTION METHOD: (RADIATED EMISSIONS)



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### **TEST PROCEDURE**

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.6.2 and 7.6.3 for the measurement method.

### **TEST RESULTS**

Conducted Measurement (9 KHz to 12.75GHz) --- PASS

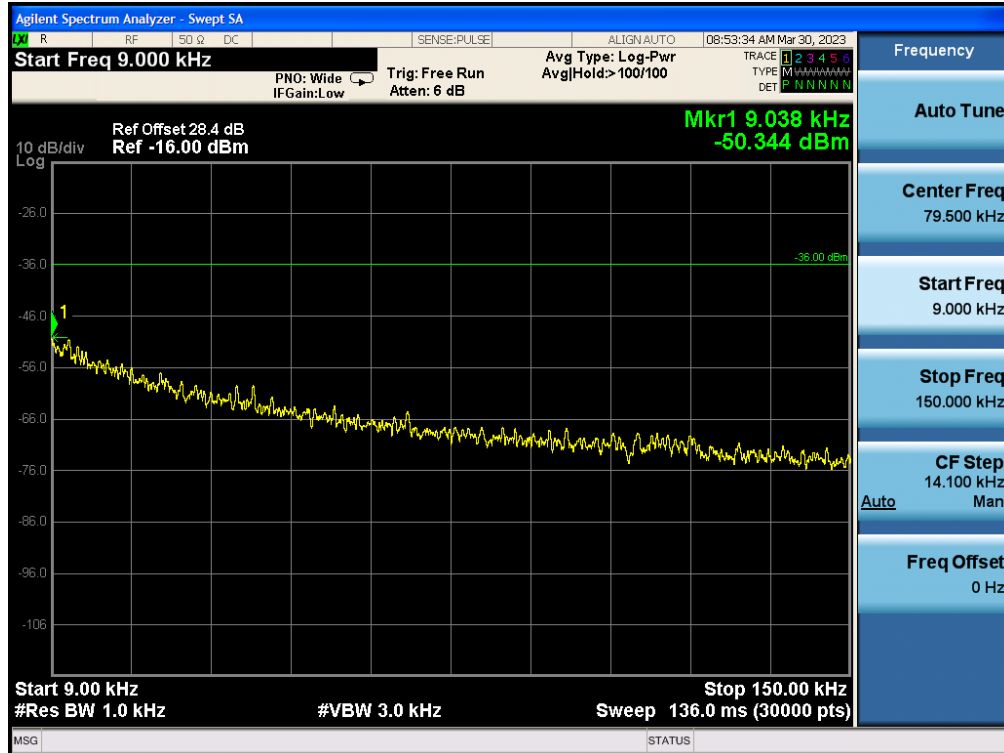
**Note:** *only result the worst case in this part.*

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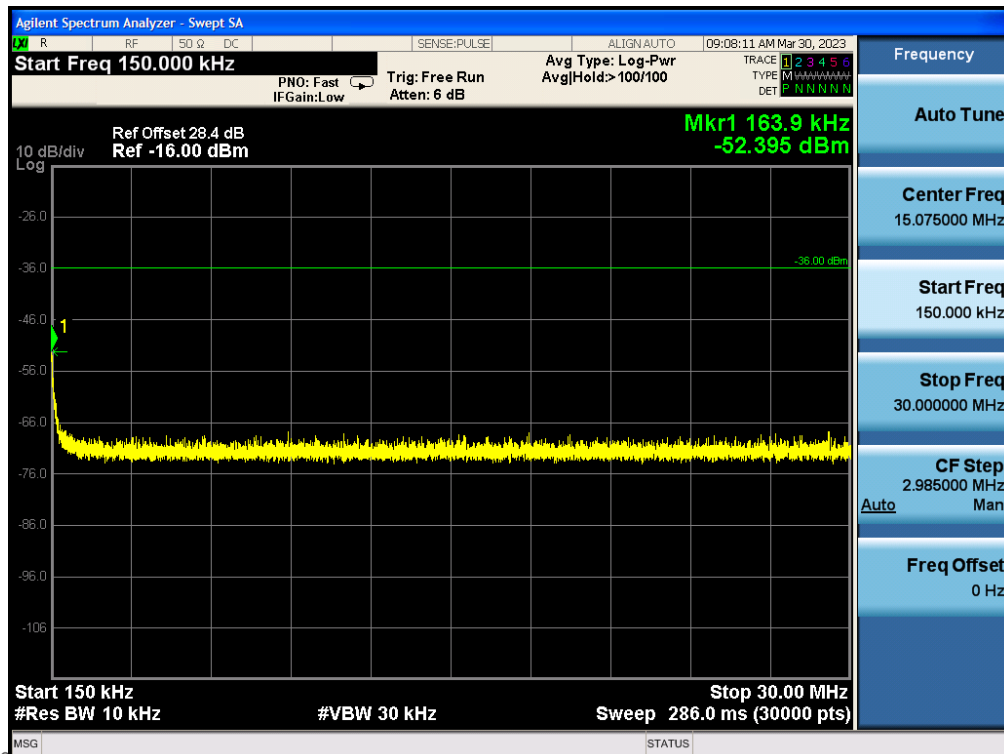
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Tel: +86-755 2523 4088 E-mail: [agc@agccert.com](mailto:agc@agccert.com) Web: <http://www.agccert.com/>

VHF:

**UNWANTED EMISSIONS AT BOTTOM CHANNEL**  
**(137.025MHz with 12.5 KHz channel separation)-5W**  
**9 KHz-150 KHz**

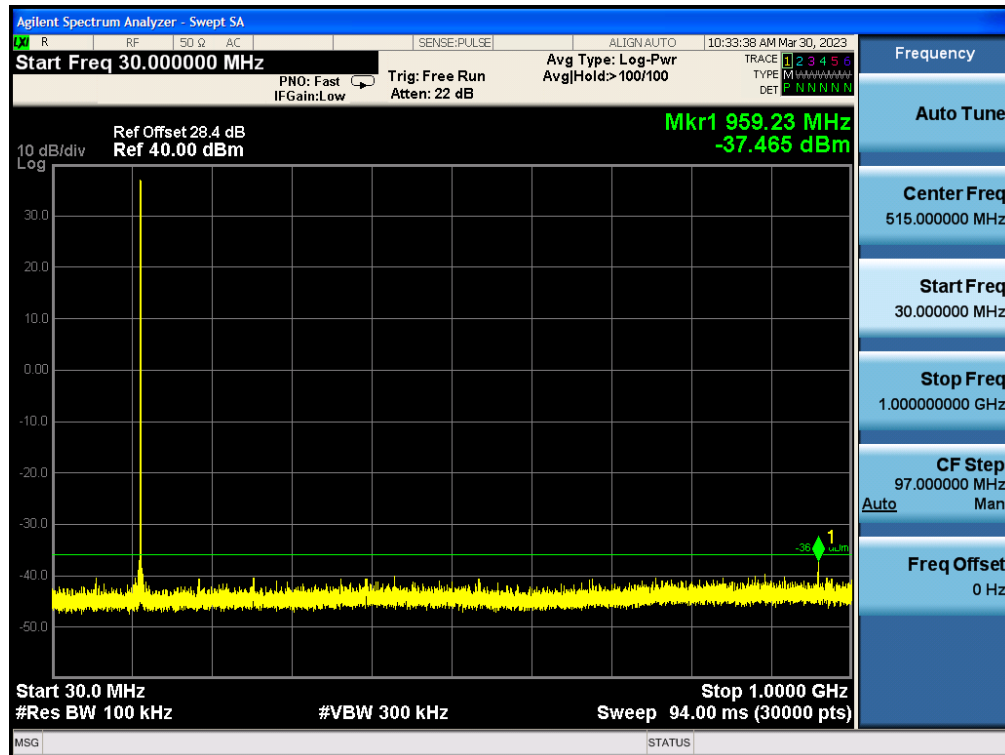


150 KHz-30 MHz

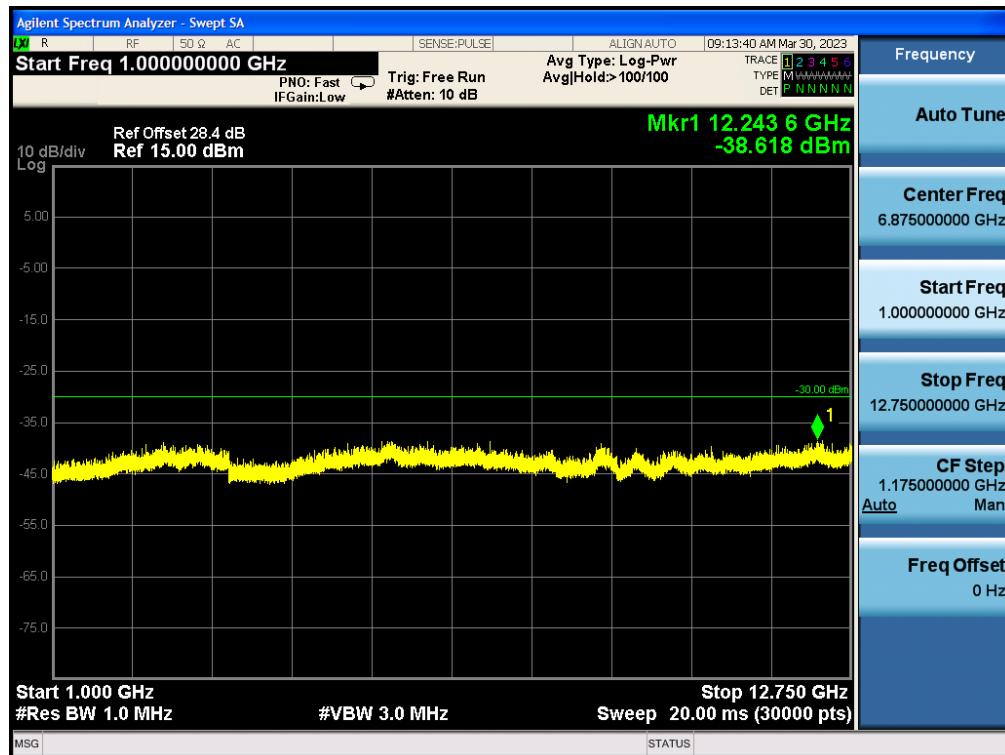


Any report having not been tested/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

### 30 MHz-1 GHz



### 1 GHz-12.75Hz



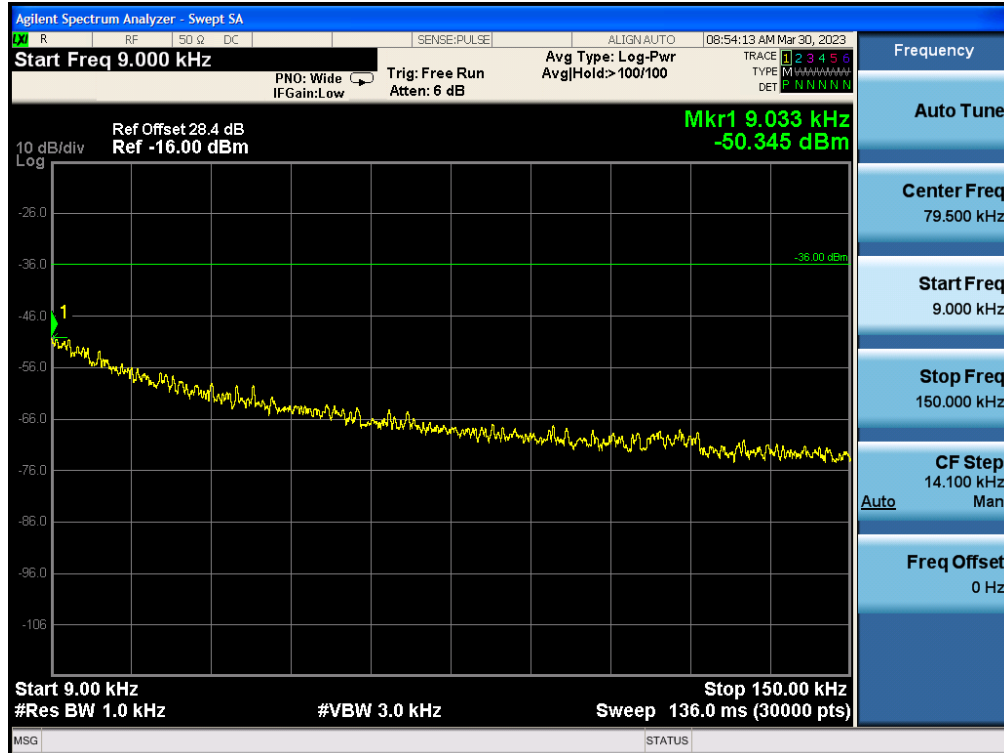
*Note: All the test frequencies was tested, but only the worst data be recorded in this part.*

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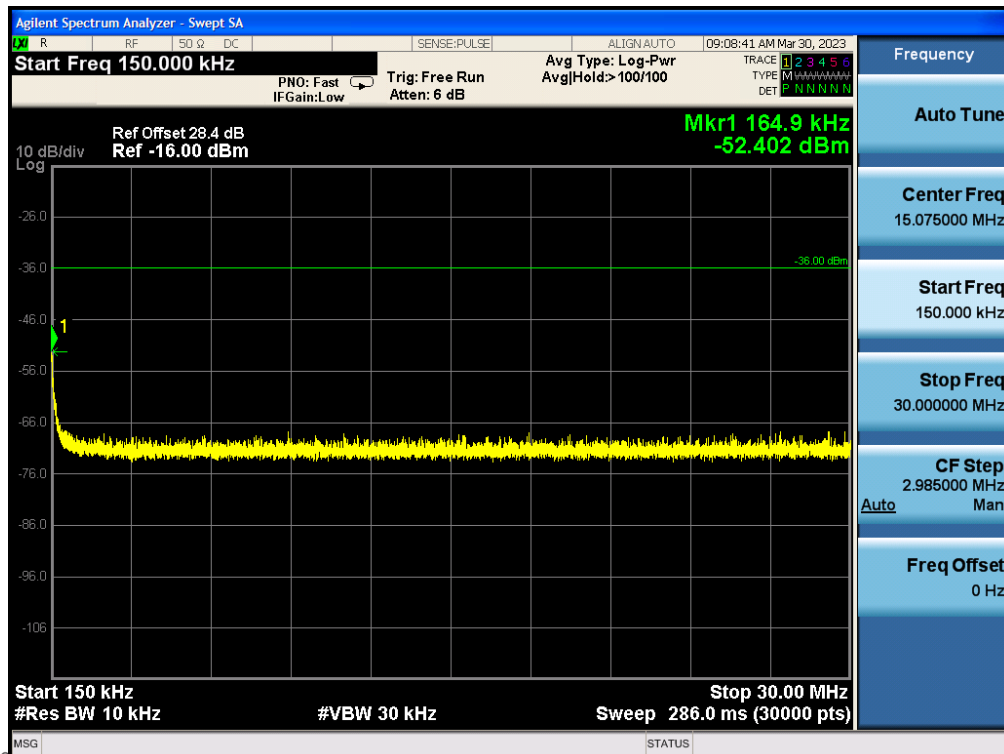
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UHF:

**UNWANTED EMISSIONS AT BOTTOM CHANNEL**  
**(400.025MHz with 12.5 KHz channel separation)-5W**  
**9 KHz-150 KHz**

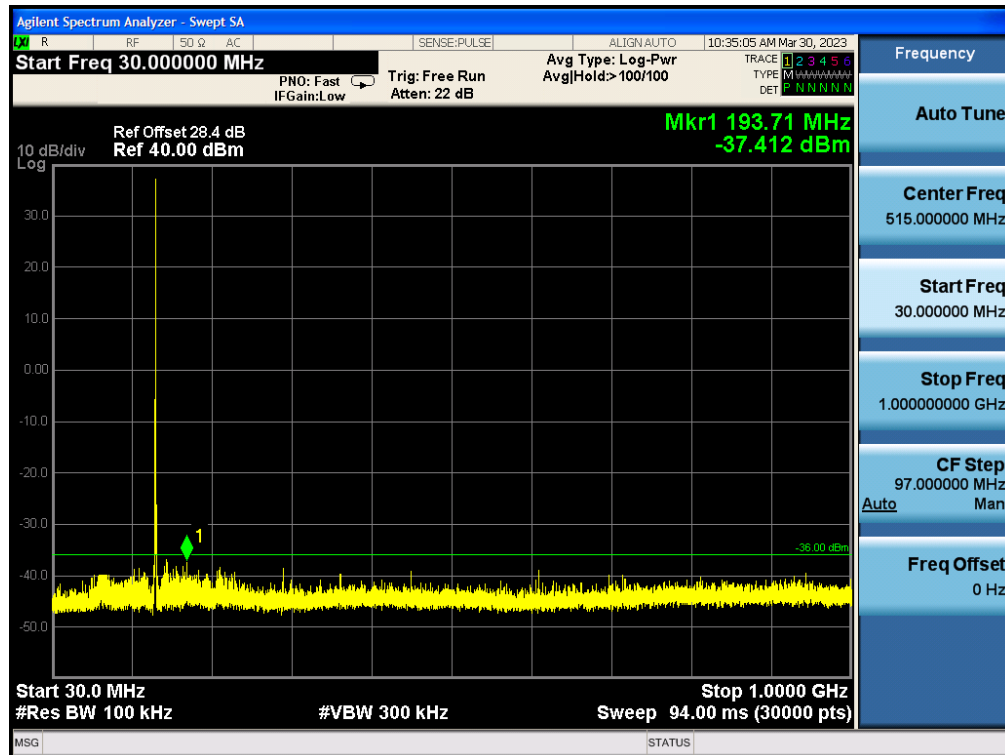


150 KHz-30 MHz

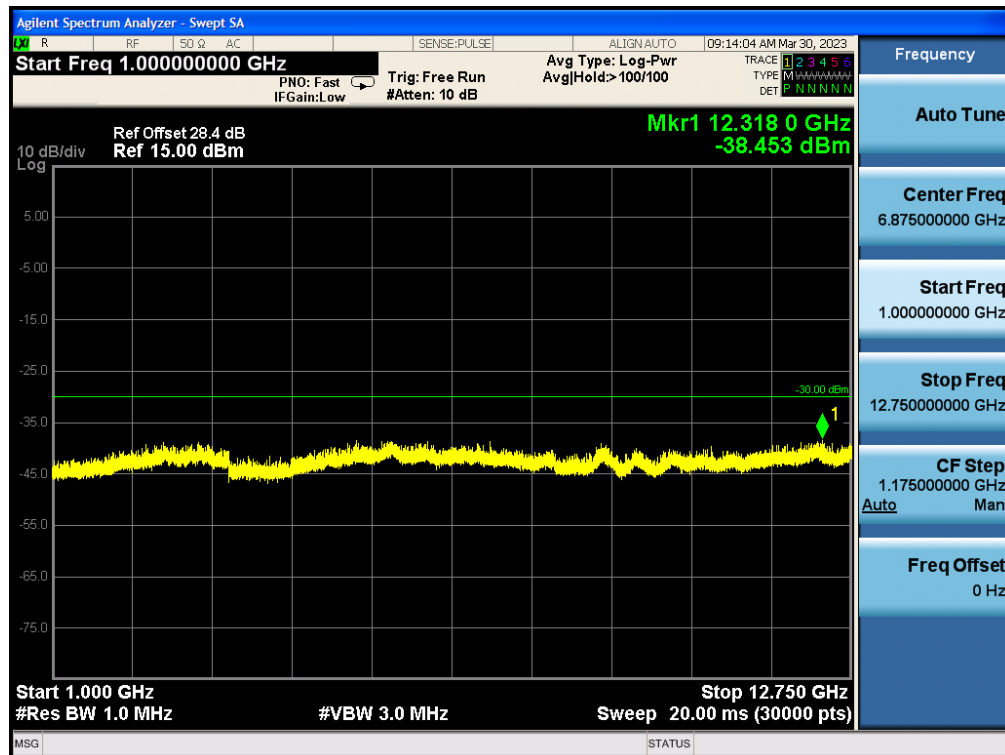


Any report having not been tested/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

### 30 MHz-1 GHz



### 1 GHz-12.75GHz



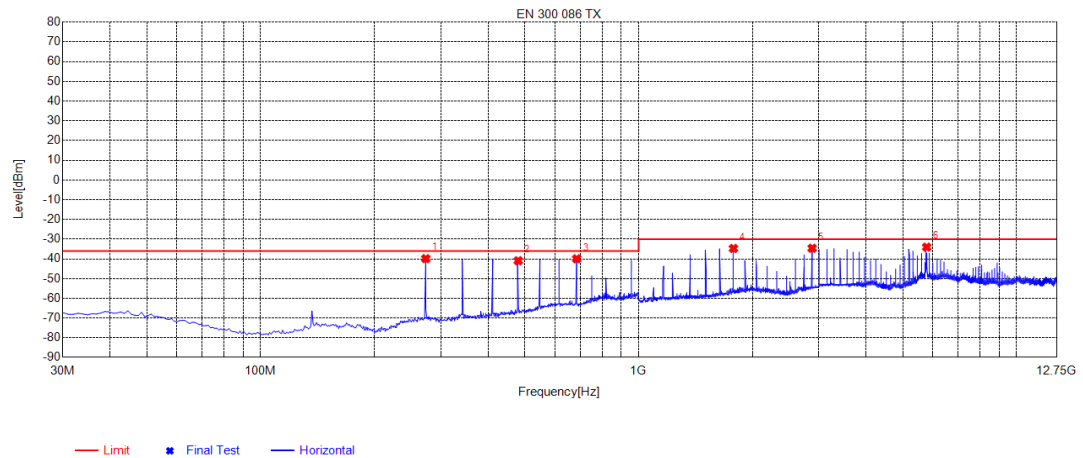
*Note: All the test frequencies was tested, but only the worst data be recorded in this part.*

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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# Effective Radiated Power Measurement (30 MHz to 12.75GHz) --- **PASS**

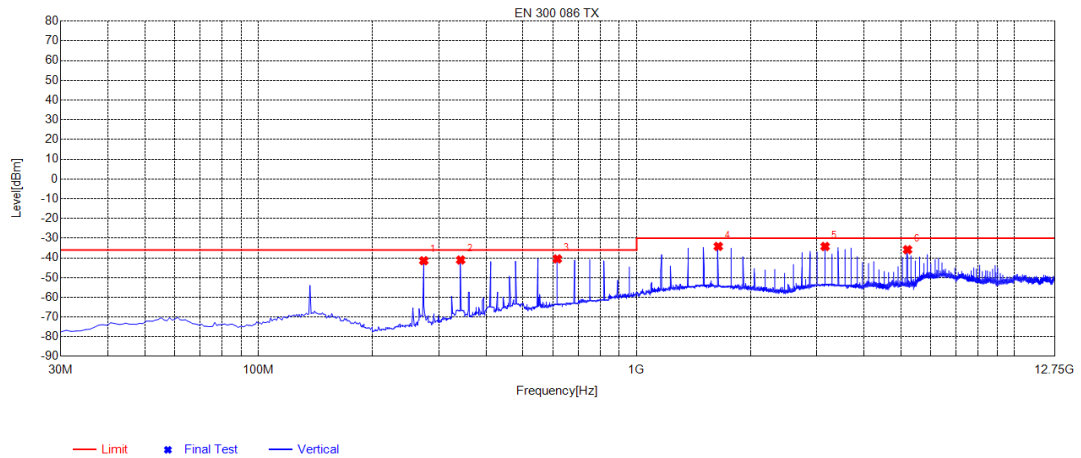
## The Bottom channel for 12.5 KHz Channel Separation @Transmitting Mode-Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	273.47	-73.06	-39.89	-36.00	3.89	33.17	18	Horizontal
2	480.08	-76.89	-40.94	-36.00	4.94	35.95	10	Horizontal
3	685.72	-80.05	-39.97	-36.00	3.97	40.08	181	Horizontal
4	1781.4531	-33.63	-34.73	-30.00	4.73	-1.10	18	Horizontal
5	2877.8378	-36.76	-34.63	-30.00	4.63	2.13	280	Horizontal
6	5780.378	-44.02	-34.05	-30.00	4.05	9.97	84	Horizontal

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

### The Bottom channel for 12.5 KHz Channel Separation @Transmitting Mode- Vertical

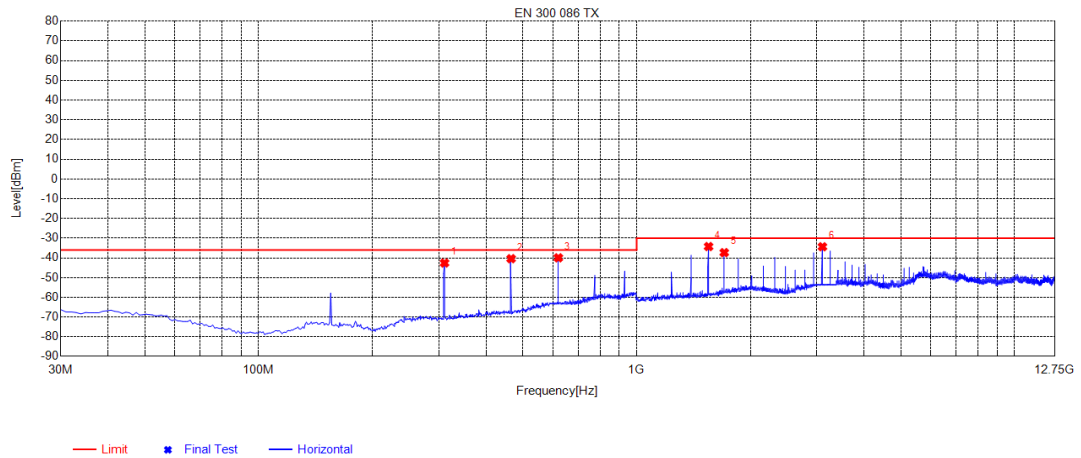


NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	273.47	-71.75	-41.45	-36.00	5.45	30.30	9	Vertical
2	342.34	-73.73	-41.08	-36.00	5.08	32.65	304	Vertical
3	616.85	-79.54	-40.53	-36.00	4.53	39.01	1	Vertical
4	1643.9644	-35.86	-34.20	-30.00	4.20	1.66	138	Vertical
5	3151.6402	-37.40	-34.24	-30.00	4.24	3.16	240	Vertical
6	5206.9207	-40.66	-35.86	-30.00	5.86	4.80	17	Vertical

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### The Middle channel for 12.5 KHz Channel Separation @Transmitting Mode-Horizontal

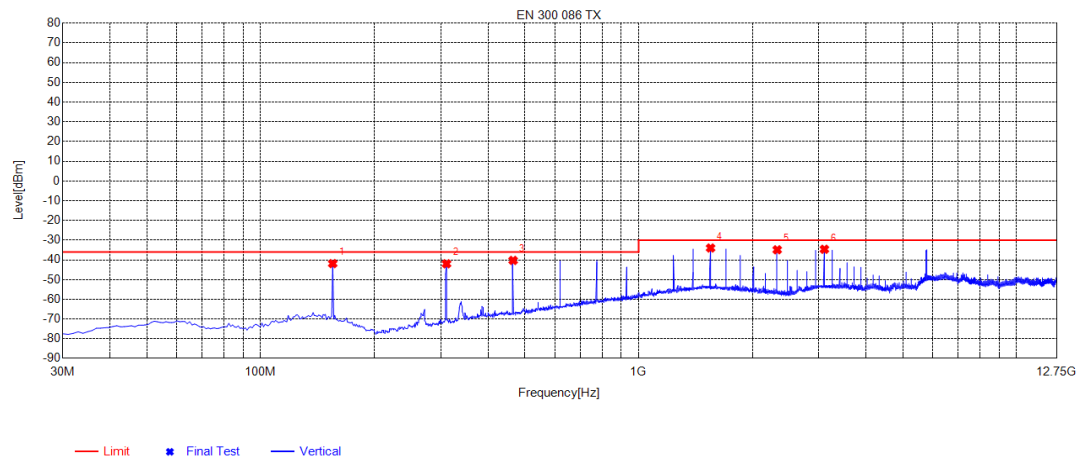


NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	310.33	-74.81	-42.60	-36.00	6.60	32.21	49	Horizontal
2	465.53	-76.09	-40.42	-36.00	4.42	35.67	19	Horizontal
3	620.73	-79.88	-39.97	-36.00	3.97	39.91	157	Horizontal
4	1549.955	-31.42	-34.26	-30.00	4.26	-2.84	157	Horizontal
5	1705.0705	-35.66	-37.34	-30.00	7.34	-1.68	195	Horizontal
6	3101.1101	-37.84	-34.37	-30.00	4.37	3.47	352	Horizontal

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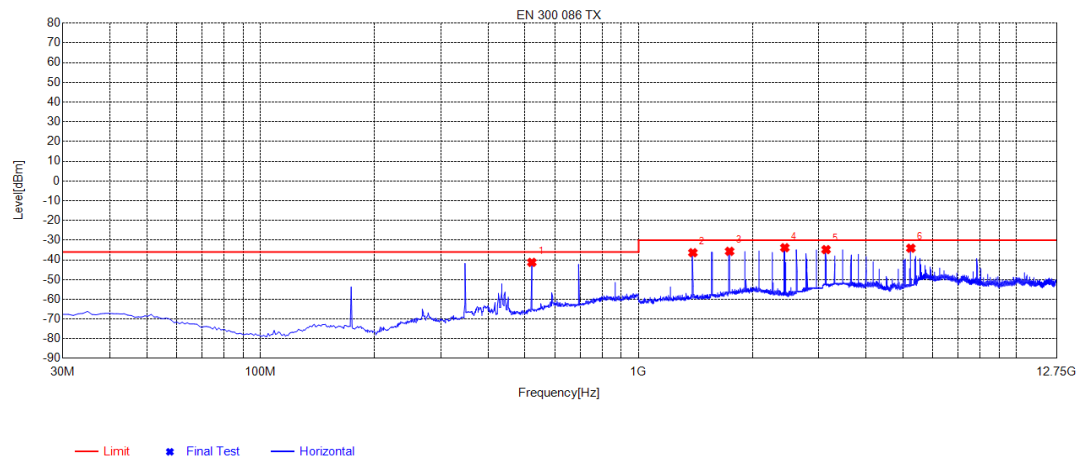
### The Middle channel for 12.5 KHz Channel Separation @Transmitting Mode- Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	155.13	-75.24	-41.89	-36.00	5.89	33.35	276	Vertical
2	310.33	-73.33	-41.98	-36.00	5.98	31.35	40	Vertical
3	465.53	-76.19	-40.28	-36.00	4.28	35.91	351	Vertical
4	1549.955	-35.98	-33.99	-30.00	3.99	1.99	218	Vertical
5	2325.5326	-34.32	-34.89	-30.00	4.89	-0.57	322	Vertical
6	3099.935	-37.81	-34.63	-30.00	4.63	3.18	294	Vertical

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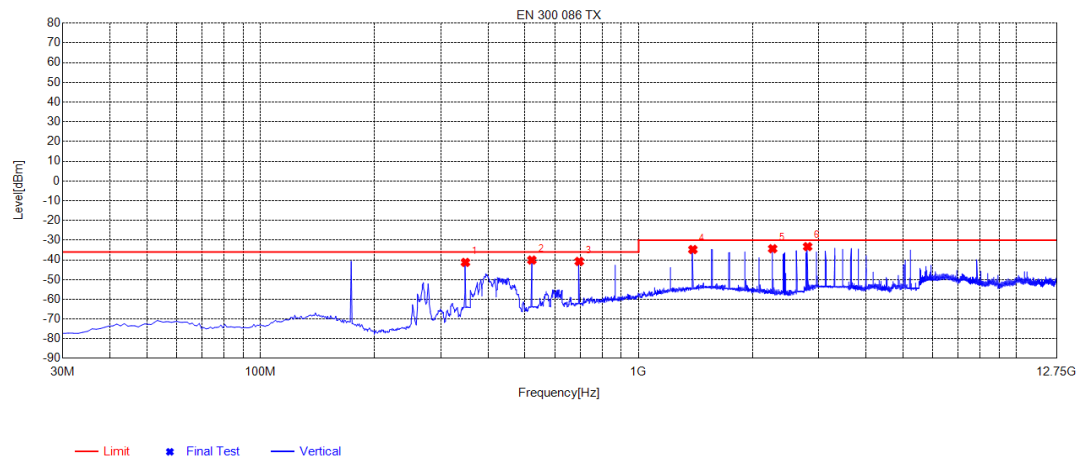
### The Top channel for 12.5 KHz Channel Separation @Transmitting Mode-Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	521.79	-78.36	-41.26	-36.00	5.26	37.10	360	Horizontal
2	1391.3141	-32.93	-36.37	-30.00	6.37	-3.44	128	Horizontal
3	1740.324	-34.27	-35.68	-30.00	5.68	-1.41	194	Horizontal
4	2435.9936	-32.64	-33.83	-30.00	3.83	-1.19	176	Horizontal
5	3131.6632	-38.33	-34.81	-30.00	4.81	3.52	9	Horizontal
6	5249.2249	-40.41	-34.09	-30.00	4.09	6.32	74	Horizontal

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

### The Top channel for 12.5 KHz Channel Separation @Transmitting Mode- Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	348.16	-74.17	-41.28	-36.00	5.28	32.89	104	Vertical
2	521.79	-77.01	-40.11	-36.00	4.11	36.90	169	Vertical
3	696.39	-81.21	-40.80	-36.00	4.80	40.41	30	Vertical
4	1391.3141	-36.22	-34.78	-30.00	4.78	1.44	343	Vertical
5	2262.0762	-33.97	-34.35	-30.00	4.35	-0.38	142	Vertical
6	2799.1049	-34.78	-33.30	-30.00	3.30	1.48	351	Vertical

Remark: 1) Measuring frequencies from 30MHz to the 12.75GHz.  
2) The emission more than 30dB below the limit is not measured.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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## 6.7 INTERMODULATION ATTENUATION

This requirement applies only to transmitters to be used in base stations (fixed).

### LIMIT

#### ETSI EN 300 086 (V2.1.2) Sub-clause 7.7.3

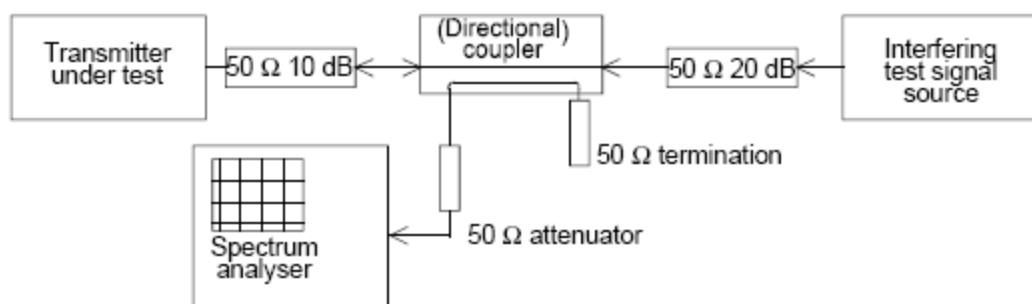
The intermodulation attenuation as defined in ETSI EN 300 086 Sub-clause 7.7.1, two classes of transmitter intermodulation attenuation are defined, the equipment shall fulfill one of the requirements:

- 1) In general the intermodulation attenuation ratio shall be at least 40.0 dB for any intermodulation component:
- 2) For DMR Digital Transceiver equipment to be used in special service conditions (e.g. at sites where more than one transmitters will be service) or where the regulatory authority makes it a conditions of the licence, the intermodulation attenuation ratio shall be at least 70.0 dB for any intermodulation component. In the case where the performance is achieved by additional internal or external isolating devices (such as circulators) these are expected be available at the time the measurement are made shall be used for the measurement.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyser	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
SIGNAL GENERATOR	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024
Directional Coupler	Werlatone	C5571-10	99463	Mar. 30, 2022	Mar. 29, 2024
RF Amplifier	MITEQ	AM-4A-0001 15	1465421	Jun. 08, 2022	Jun. 07, 2023

### TEST CONFIGURATION



### TEST PROCEDUR

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 7.7.2 for the measurement method.

### TEST RESULTS

N/A

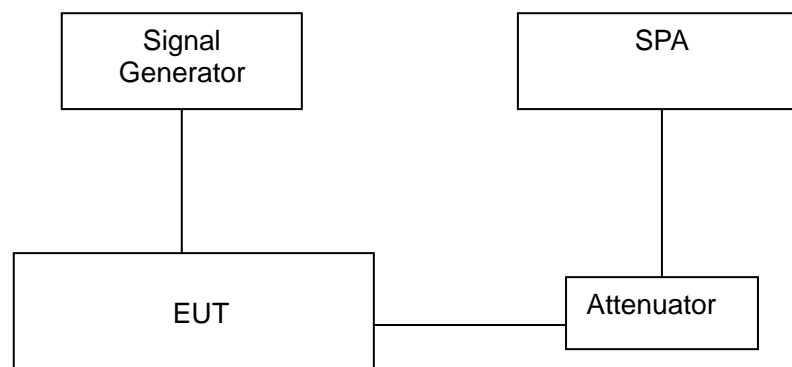
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**6.8 ADJACENT AND ALTERNATE CHANNEL POWER IN EN 300 219****LIMIT****ETSI EN 300 219 (V2.1.1) Sub-clause 8.4.3**

The adjacent and alternate channel power as defined in ETSI EN 300 219 Sub-clause 8.4.1, For a channel separation of 12,5 kHz, the adjacent channel power shall not exceed a value of 60 dB below the transmitter carrier power without the need to be below 0,20  $\mu$ W(-37 dBm).

**MEASUREMENT EQUIPMENT USED**

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
POWER ATTENUATOR	WEINSCHEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
SIGNAL GENERATOR	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

**TEST CONFIGURATION****TEST PROCEDURE**

- Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 6.3 for the test conditions.
- Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 8.4.2 for the measurement method.

**TEST RESULTS****Test Result of Adjacent Channel Power:****VHF:****The Bottom Channel (137.025MHz) of 12.5 KHz Channel Separation-5W**

Any report having not been signed by a authorized approver, or having been signed without authorization, or having not been stamped by the “Qualified Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	62.1
		-8.25 KHz	63.2
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel of (155.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	63.7
		-8.25 KHz	65.4
Applicable Limit		60 dBc	
Result		Pass	

The Top Channel (173.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40V )	+8.25 KHz	62.5
		-8.25 KHz	63.8
Applicable Limit		60 dBc	
Result		Pass	

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**UHF:**
The Top Channel (479.975MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	63.3
		-8.25 KHz	64.5
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel of (450.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	63.2
		-8.25 KHz	64.3
Applicable Limit		60 dBc	
Result		Pass	

The Middle Channel (440.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	62.9
		-8.25 KHz	63.3
Applicable Limit		60 dBc	
Result		Pass	

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The Middle Channel (430.025MHz) of 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	62.9
		-8.25 KHz	63.3
Applicable Limit		60 dBc	
Result		Pass	

The Bottom Channel of (400.025MHz) 12.5 KHz Channel Separation-5W

Test Condition		Measurement Offset	Adjacent Channel Power ( dBc )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25℃ )	V Nor ( 7.40 )	+8.25 KHz	62.2
		-8.25 KHz	64.5
Applicable Limit		60 dBc	
Result		Pass	

**THE RESULTS: PASS**

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## 6.9 TRANSMITTER SPURIOUS EMISSIONS IN EN 300 219

### LIMIT

#### ETSI EN 300 219 (V2.1.1) Sub-clause 8.5.4

Spurious emission as defined in ETSI EN 300 219 Sub-clause 8.5.1, the power of any spurious emission shall not exceed the values given in table 3 and table 4

Table 3: Conducted emissions

Frequency range	Tx operating	Tx standby
9 kHz to 1 GHz	0,25 $\mu$ W (-36 dBm)	2,0 nW (-57 dBm)
1 GHz to 4 GHz, or 1GHz to 12,75 GHz (clause 8.5.2)	1,00 $\mu$ W (-30 dBm)	20 nW (-47 dBm)

Table 4: Radiated emissions

Frequency range	Tx operating	Tx standby
30 MHz to 1 GHz	0,25 $\mu$ W (-36 dBm)	2,0 nW (-57 dBm)
1 GHz to 4 GHz	1,00 $\mu$ W (-30 dBm)	20 nW (-47 dBm)

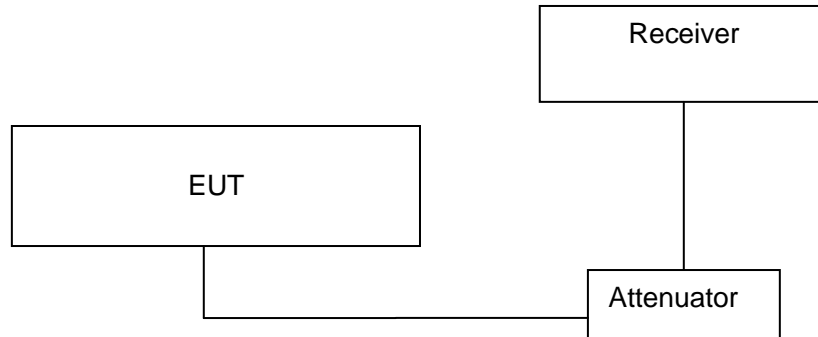
### MEASUREMENT EQUIPMENT USED

Radiated Emission Test Site # 4					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI TEST RECEIVER	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
AMPLIFIER	Schwarzbeck	BBV 9718	9718-162	Jun. 06, 2022	Jun. 05, 2023
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
ATTENUATOR	WEINSCHTEL CORP	58-30-33	ML030	Jun. 06, 2022	Jun. 05, 2023
ANTENNA	R&S	VULB9168	D69250	Apr. 28, 2021	Apr. 27, 2023
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
H&T CHAMBER	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023

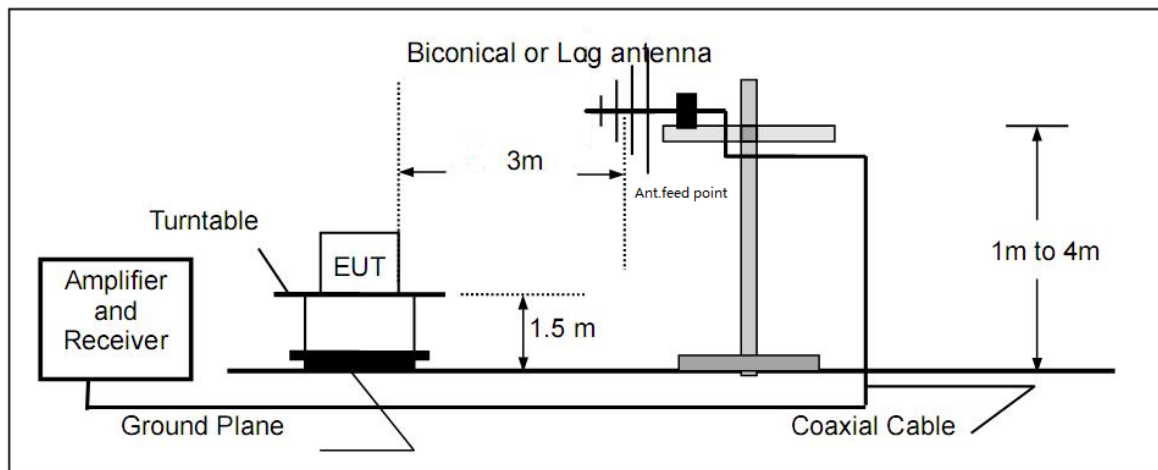
**Remark:** Each piece of equipment is scheduled for calibration once a year. Expect for the antenna was once two years.

## TEST CONFIGURATION

### Conducted Measurement (9 KHz to 12.75GHz)

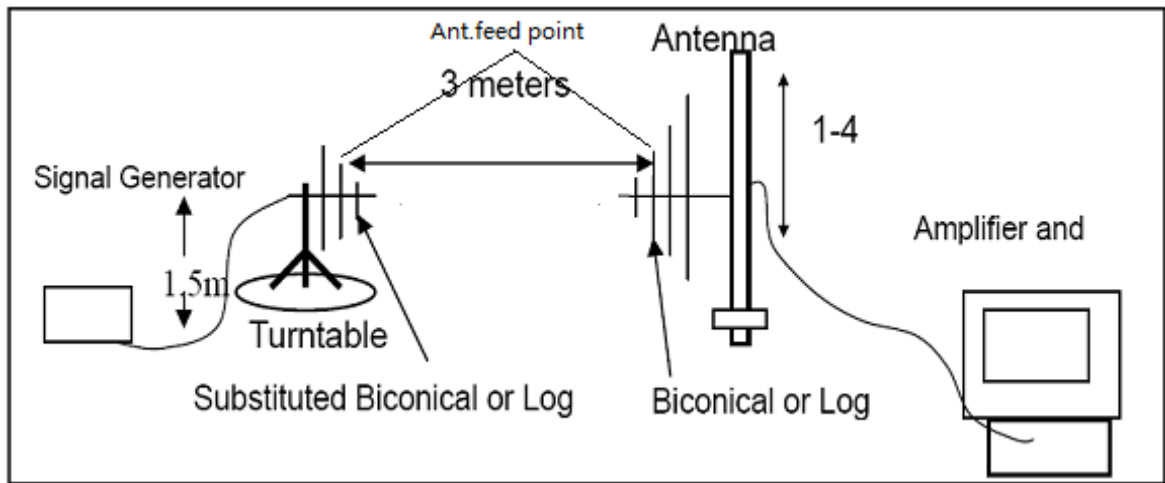


### Effective Radiated Power measurement (30MHz to 12.75GHz) RADIATED BELOW 1GHZ

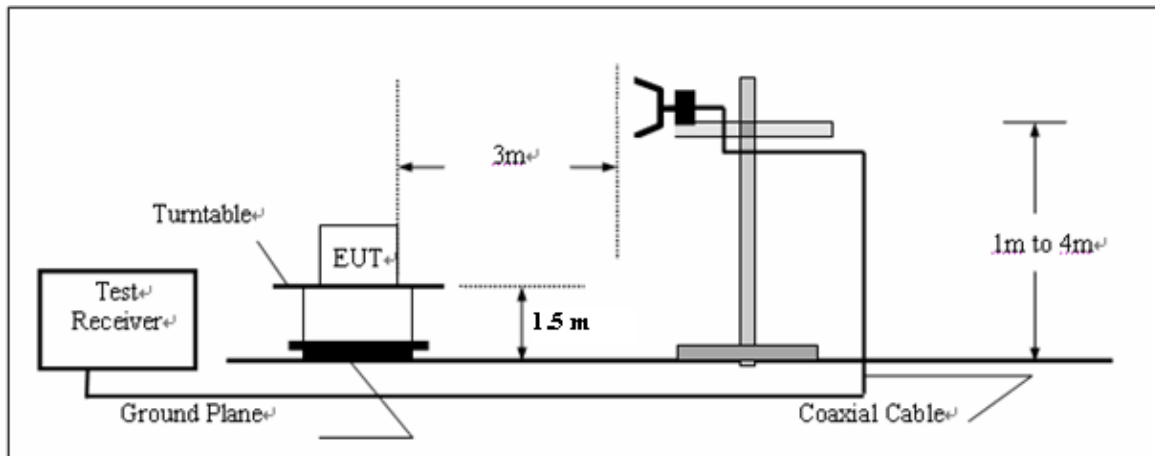


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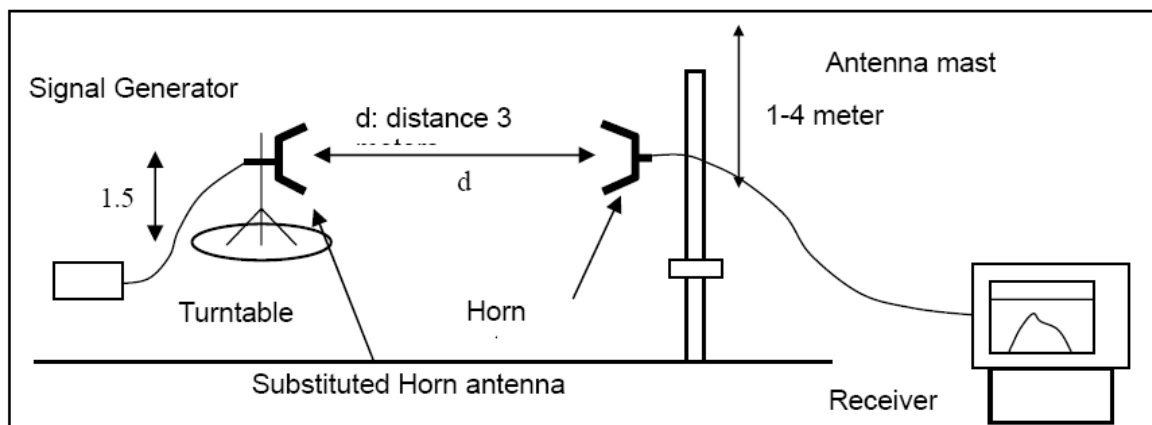
### SUBSTITUTION METHOD: (RADIATED EMISSIONS)



### RADIATED EMISSION TEST SETUP UP ABOVE 1000MHZ



### SUBSTITUTION METHOD: (RADIATED EMISSIONS)



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by [agc01@agccert.com](mailto:agc01@agccert.com).

**TEST PROCEDURE**

3. Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 6.3 for the test conditions.
4. Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 8.5.2 and 8.5.3 for the measurement method.

**TEST RESULTS**

Conducted Measurement (9 KHz to 12.75GHz) --- PASS

**Note:** *only result the worst case in this part.*

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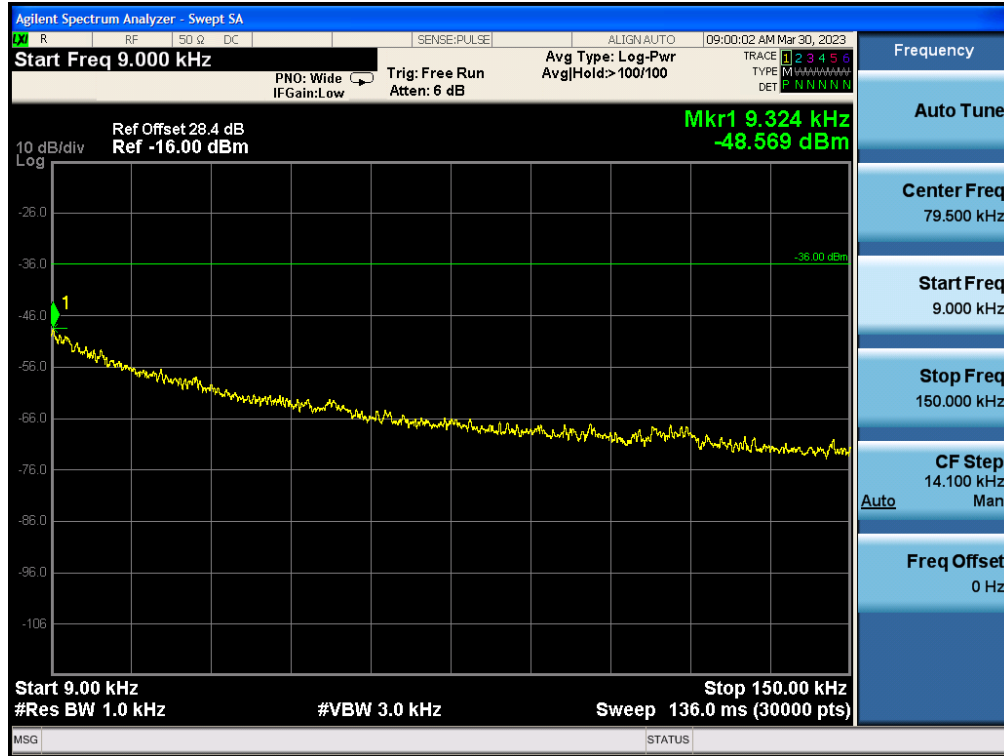
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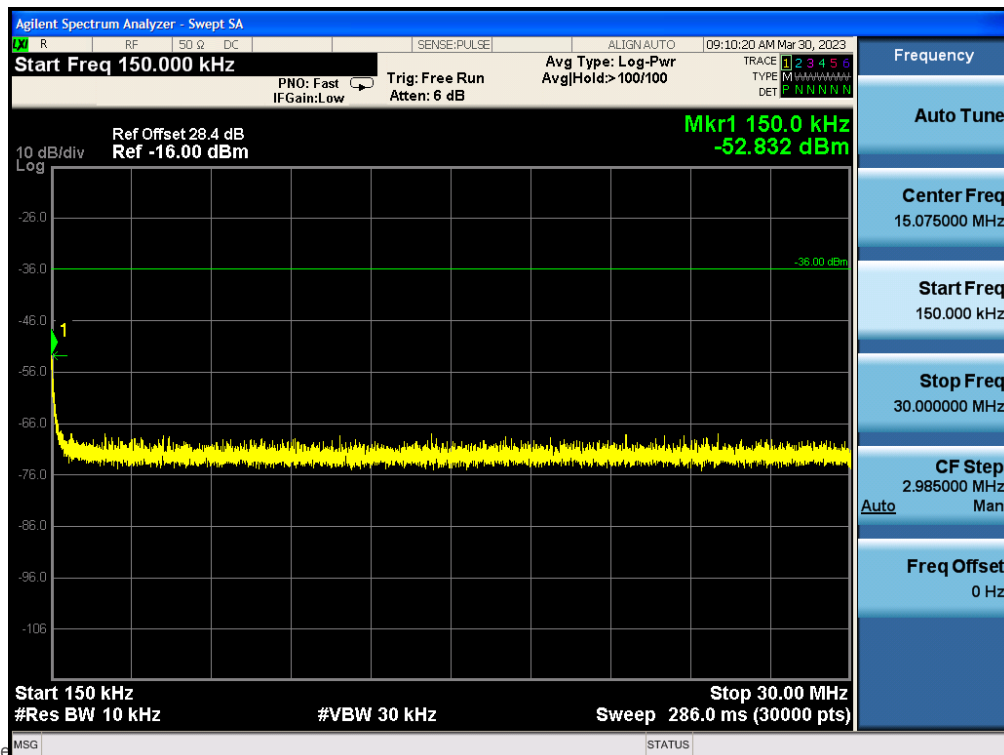
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: <http://www.agccert.com/>

VHF:

**UNWANTED EMISSIONS AT BOTTOM CHANNEL**  
**(137.025MHz with 12.5 KHz channel separation)-5W**  
**9 KHz-150 KHz**



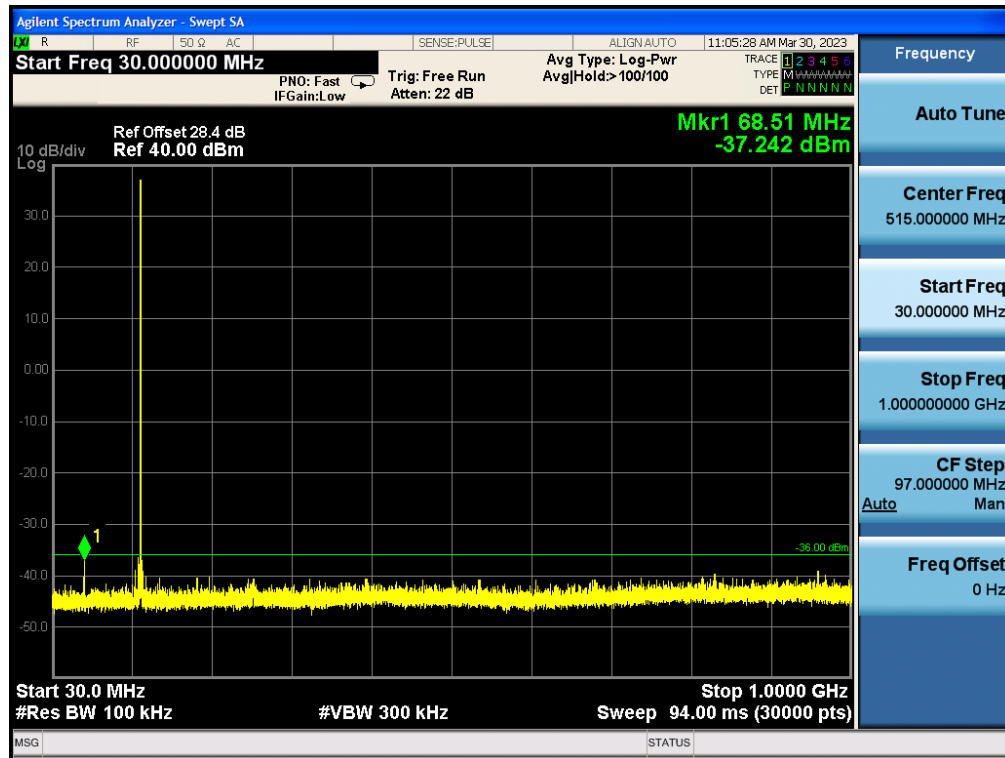
150 KHz-30 MHz



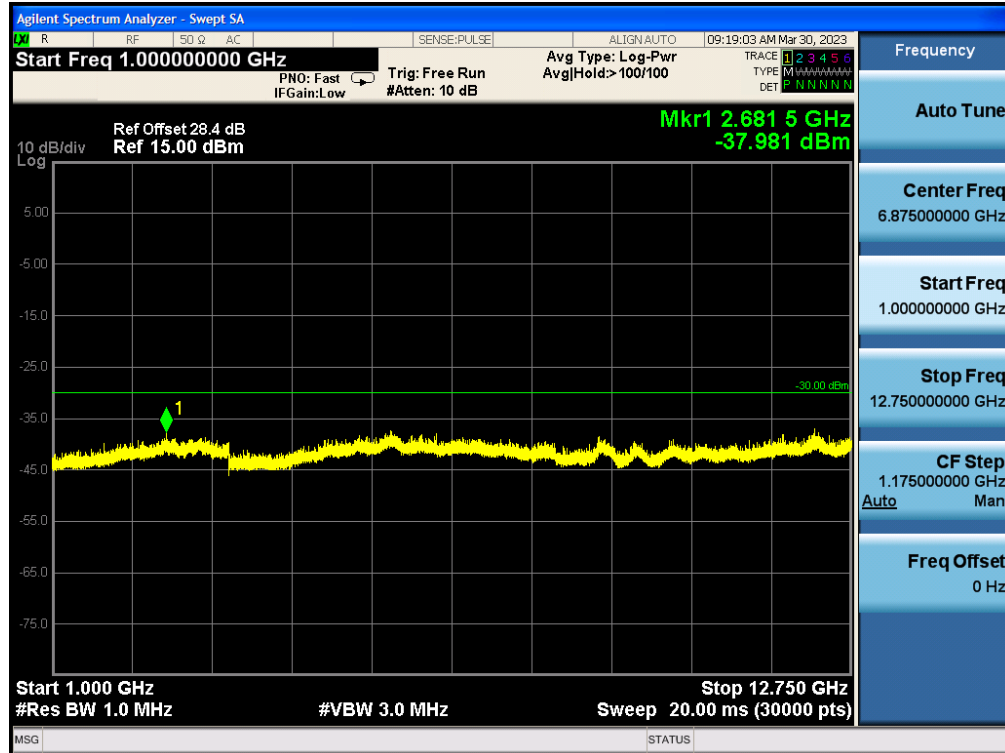
Any report having not been tested/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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### 30 MHz-1 GHz



### 1 GHz-12.75Hz



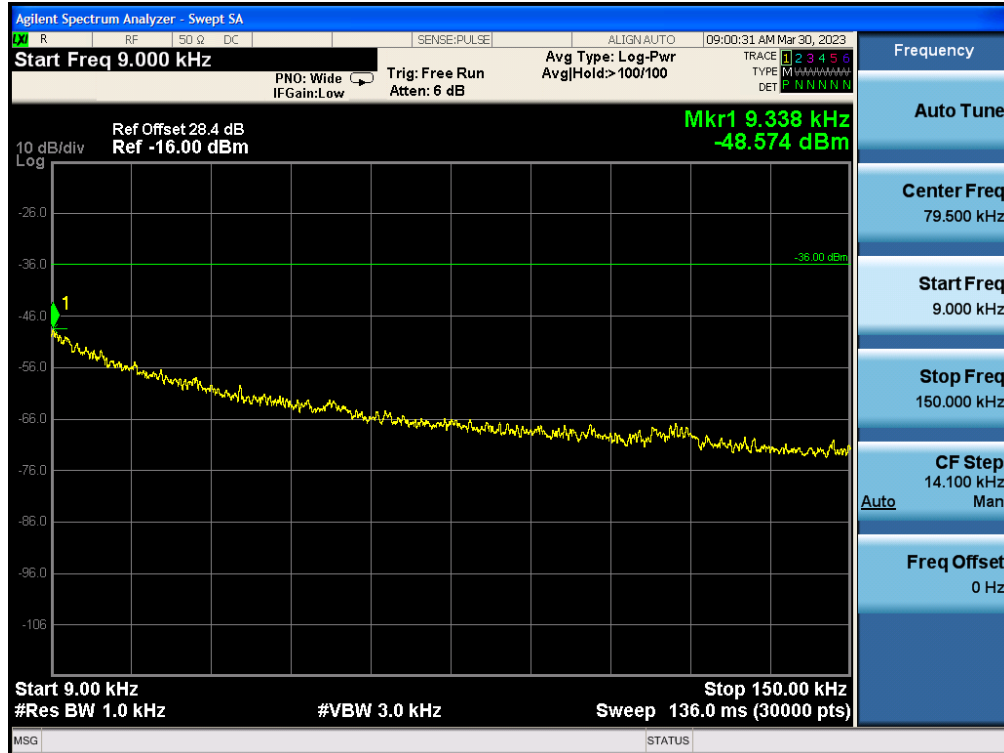
*Note: All the test frequencies was tested, but only the worst data be recorded in this part.*

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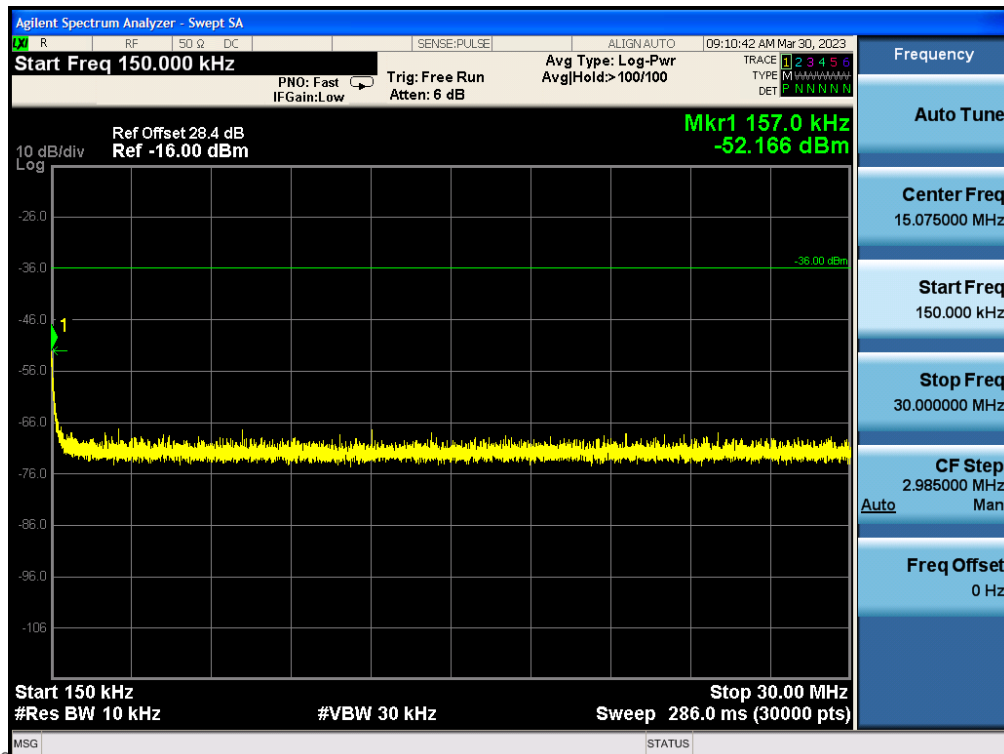
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UHF:

**UNWANTED EMISSIONS AT BOTTOM CHANNEL**  
**(400.025MHz with 12.5 KHz channel separation)-5W**  
**9 KHz-150 KHz**



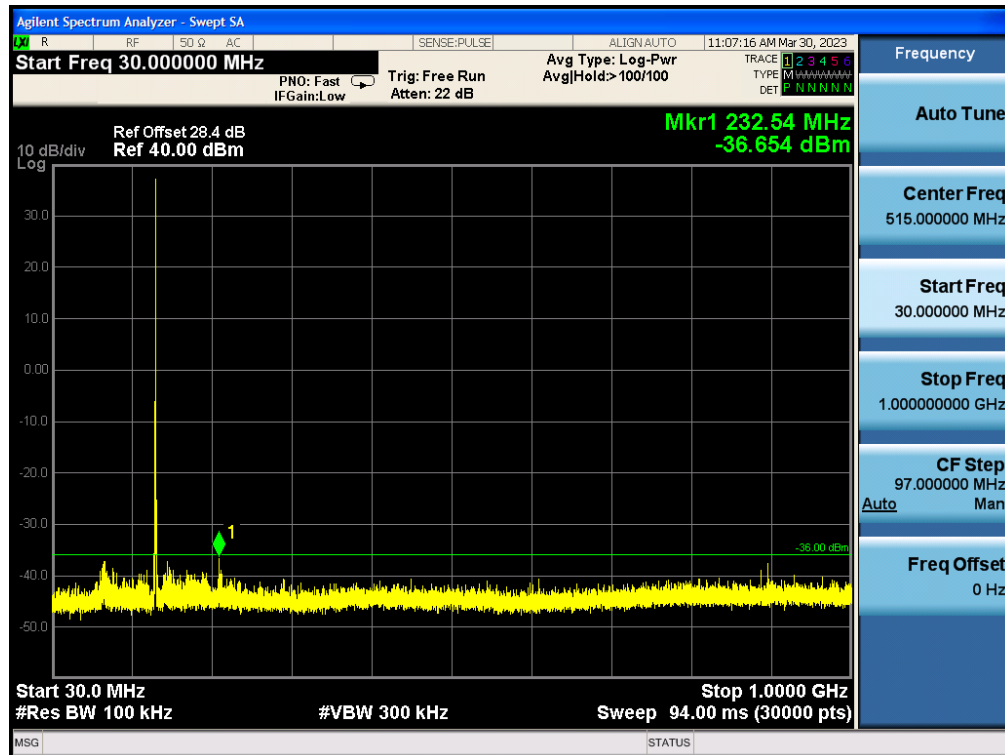
150 KHz-30 MHz



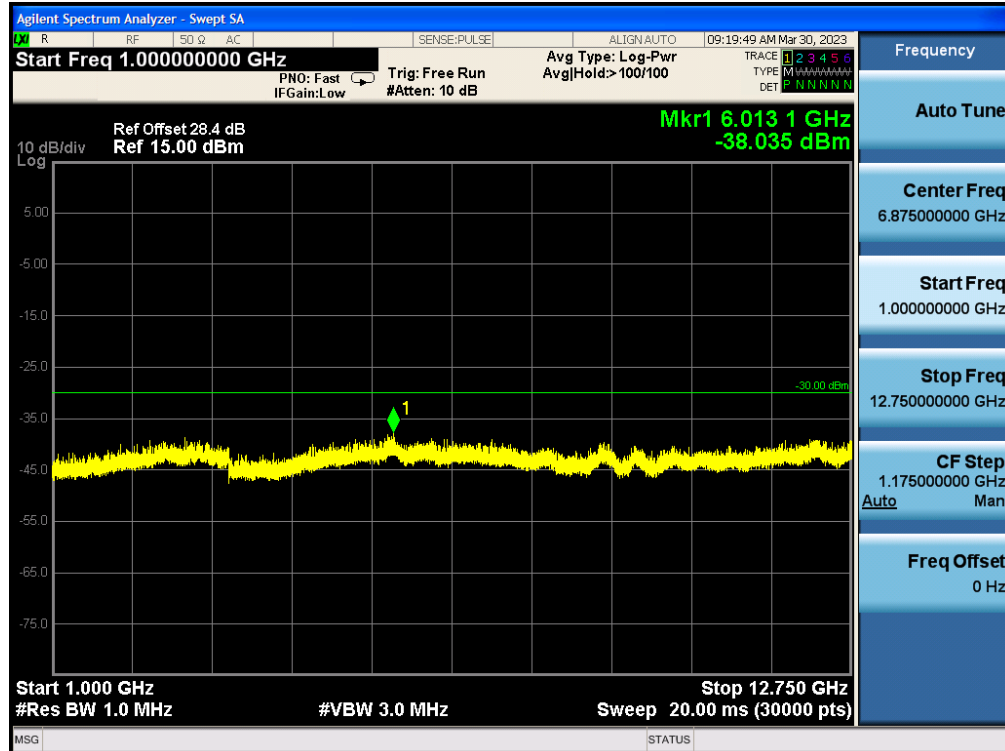
Any report having not been tested/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



### 30 MHz-1 GHz



### 1 GHz-12.75GHz



*Note: All the test frequencies was tested, but only the worst data be recorded in this part.*

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### TEST RESULT OF 12.5 KHz CHANNEL SEPARATION--Standby Mode

Frequency (MHz)	Test result (dBm)	Limit (dBm)	Margin (dB)
9KHz - 1 GHz	--	-57	At least 20 dB down than the limit
1 GHz - 4GHz	--	-47	

Remark:

- (1) Margin (dBm) = Limit-test result
- (2) Measuring frequencies from 9KHz - 12.75GHz.
- (3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the power is too small to be measured.

### Effective Radiated Power measurement (30 MHz to 12.75GHz) --- PASS All Channels for 12.5 KHz Channel Separation

Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1 GHz	--	V	--				-36	At least 20 dB down than the limit
Above 1 GHz	--	V	--				-30	
Below 1 GHz	--	H	--				-36	
Above 1 GHz	--	H	--				-30	

Remark:

- (1) Emission Level(dBm) = SG O/P-Cable + Ant Gain
- (2) Measuring frequencies from 30 MHz to the 12.75GHz.
- (3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

## 7. ETSI EN 300 086 REQUIREMENTS FOR RECEIVER

### 7.1 MAXIMUM USABLE SENSITIVITY (CONDUCTED)

#### LIMIT

#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.1.3**

The maximum usable sensitivity (conducted) of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.1.1 shall produce

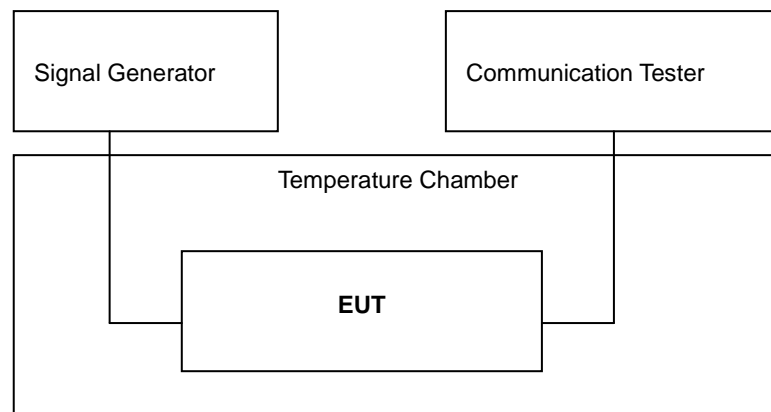
- a) An audio frequency output power of at least 50% of the rated power output, and
- b) A SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in ITU-T Recommendation O.41[2] Red Book 1984.

The maximum usable sensitivity shall not exceed an electromotive force (emf) of +6.0 dBuV under normal test conditions, and an emf of +12.0 dBuV under extreme test conditions.

#### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
H&T Chamber	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023
Signal Generator	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 and 5.4 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.1.2 for the measurement method.

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# TEST RESULTS

## VHF:

Test Result of 12.5 KHz Channel Separation (137.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.52	6
T min ( -10°C )	DC 6.29V	5.43	12
	DC 7.40V	6.39	12
T Max ( 40°C )	DC 6.29V	6.51	12
	DC 7.40V	6.28	12
Result		Pass	

Test Result of 12.5 KHz Channel Separation (155.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.16	6
T min ( -10°C )	DC 6.29V	5.74	12
	DC 7.40V	5.69	12
T Max ( 40°C )	DC 6.29V	6.74	12
	DC 7.40V	6.12	12
Result		Pass	

Test Result of 12.5 KHz Channel Separation (173.975MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.15	6
T min ( -10°C )	DC 6.29V	5.78	12
	DC 7.40V	5.63	12
T Max ( 40°C )	DC 6.29V	6.42	12
	DC 7.40V	5.28	12
Result		Pass	

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**UHF:**

Test Result of 12.5 KHz Channel Separation (400.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.33	6
T min ( -10°C )	DC 6.29V	6.14	12
	DC 7.40V	6.25	12
T Max ( 40°C )	DC 6.29V	6.43	12
	DC 7.40V	6.85	12
Result		Pass	

Test Result of 12.5 KHz Channel Separation (430.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.45	6
T min ( -10°C )	DC 6.29V	5.52	12
	DC 7.40V	6.77	12
T Max ( 40°C )	DC 6.29V	6.69	12
	DC 7.40V	6.72	12
Result		Pass	

Test Result of 12.5 KHz Channel Separation (440.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.35	6
T min ( -10°C )	DC 6.29V	5.64	12
	DC 7.40V	6.74	12
T Max ( 40°C )	DC 6.29V	6.53	12
	DC 7.40V	6.66	12
Result		Pass	

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Test Result of 12.5 KHz Channel Separation (450.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.35	6
T min ( -10°C )	DC 6.29V	6.33	12
	DC 7.40V	6.15	12
T Max ( 40°C )	DC 6.29V	6.20	12
	DC 7.40V	6.69	12
Result		Pass	

Test Result of 12.5 KHz Channel Separation (479.975MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	4.59	6
T min ( -10°C )	DC 6.29V	6.55	12
	DC 7.40V	6.61	12
T Max ( 40°C )	DC 6.29V	6.13	12
	DC 7.40V	6.27	12
Result		Pass	

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## **7.2 AVERAGE USABLE SENSITIVITY (FIELD STRENGTH) (NOT APPLICABLE TO DEVICE WITH EXTERNAL RF PORT)**

### **LIMIT**

#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.2.3**

The maximum usable sensitivity (field strength) of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.2.1 shall produce

- a) An audio frequency output power of at least 50% of the rated power output, and
- b) A SND/ND ratio of 20 dB, measured at the receiver output.

### **MEASUREMENT EQUIPMENT USED**

N/A

### **TEST CONFIGURATION**

N/A

### **TEST PROCEDURE**

N/A

### **TEST RESULTS**

N/A

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### 7.3 CO-CHANNEL REJECTION

#### LIMIT

#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.3.3**

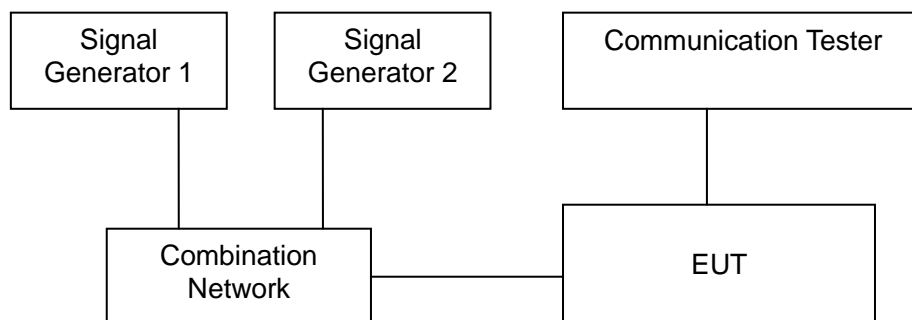
The co-channel rejection of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.3.1, at the signal displacements given in the method of measurement, shall be

- a) Between -8.0 dB and 0 dB for channel separation of 20 KHz and 25 KHz;
- b) Between -12.0 dB and 0 dB for channel separation of 12.5 KHz.

#### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
H&T Chamber	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023
Signal Generator	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.3.2 for the measurement method.

## TEST RESULTS

### VHF:

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
136.025	136.025	-8.99	Between -12.0 dB and 0 dB	Pass
136.025	136.025-0.003	-9.01	Between -12.0 dB and 0 dB	Pass
136.025	136.025-0.0015	-9.21	Between -12.0 dB and 0 dB	Pass
136.025	136.025+0.0015	-8.79	Between -12.0 dB and 0 dB	Pass
136.025	136.025+0.003	-8.42	Between -12.0 dB and 0 dB	Pass

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
155.025	155.025	-9.33	Between -12.0 dB and 0 dB	Pass
155.025	155.025-0.003	-8.45	Between -12.0 dB and 0 dB	Pass
155.025	155.025-0.0015	-8.36	Between -12.0 dB and 0 dB	Pass
155.025	155.025+0.0015	-9.42	Between -12.0 dB and 0 dB	Pass
155.025	155.025+0.003	-9.25	Between -12.0 dB and 0 dB	Pass

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
173.975	173.975	-8.70	Between -12.0 dB and 0 dB	Pass
173.975	173.975-0.003	-8.63	Between -12.0 dB and 0 dB	Pass
173.975	173.975-0.0015	-8.74	Between -12.0 dB and 0 dB	Pass
173.975	173.975+0.0015	-9.12	Between -12.0 dB and 0 dB	Pass
173.975	173.975+0.003	-9.15	Between -12.0 dB and 0 dB	Pass

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**UHF:**

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
400.025	400.025	-8.77	Between -12.0 dB and 0 dB	Pass
400.025	400.025-0.003	-8.52	Between -12.0 dB and 0 dB	Pass
400.025	400.025-0.0015	-9.06	Between -12.0 dB and 0 dB	Pass
400.025	400.025+0.0015	-9.12	Between -12.0 dB and 0 dB	Pass
400.025	400.025+0.003	-9.34	Between -12.0 dB and 0 dB	Pass

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
450.025	450.025	-9.30	Between -12.0 dB and 0 dB	Pass
450.025	450.025-0.003	-8.75	Between -12.0 dB and 0 dB	Pass
450.025	450.025-0.0015	-8.61	Between -12.0 dB and 0 dB	Pass
450.025	450.025+0.0015	-8.58	Between -12.0 dB and 0 dB	Pass
450.025	450.025+0.003	-9.72	Between -12.0 dB and 0 dB	Pass

Test Result of 12.5 KHz Channel Separation				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
479.975	479.975	-8.50	Between -12.0 dB and 0 dB	Pass
479.975	479.975-0.003	-9.05	Between -12.0 dB and 0 dB	Pass
479.975	479.975-0.0015	-8.93	Between -12.0 dB and 0 dB	Pass
479.975	479.975+0.0015	-9.05	Between -12.0 dB and 0 dB	Pass
479.975	479.975+0.003	-9.12	Between -12.0 dB and 0 dB	Pass

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## 7.4 ADJACENT CHANNEL SELECTIVITY

### LIMIT

#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.4.3**

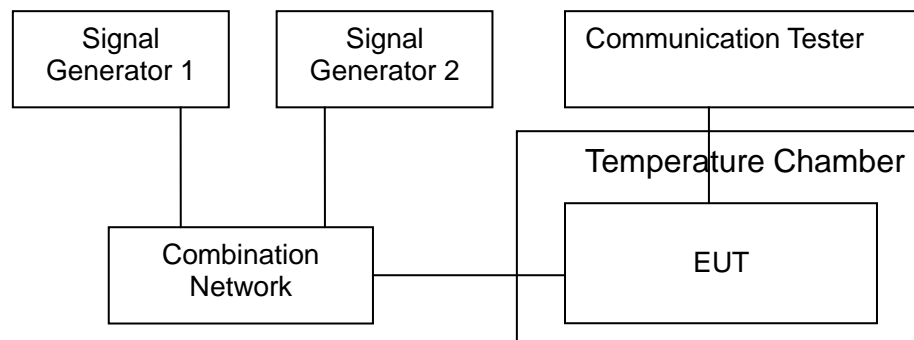
The adjacent channel selectivity of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.4.1, The adjacent channel selectivity for different channel separations shall not be less than the values given below.

	Channel separation	
	12,5 kHz	20/25 kHz
Normal test conditions	60,0 dB	70,0 dB
Extreme test conditions	50,0 dB	60,0 dB

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182A	MY50140530	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182B	MY53050647	Mar. 03, 2023	Mar. 02, 2024
H & T Chamber	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023

### TEST CONFIGURATION



### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 and 6.4 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.4.2 for the measurement method.

# TEST RESULTS

## VHF:

Test Result of 12.5 KHz Channel Separation (137.025MHz) at unwanted signal frequency above wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	73	60
T min ( -10°C )	DC 6.29V	65	50
	DC 7.40V	67	50
T Max ( 40°C )	DC 6.29V	66	50
	DC 7.40V	65	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (137.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	74	60
T min ( -10°C )	DC 6.29V	66	50
	DC 7.40V	68	50
T Max ( 40°C )	DC 6.29V	64	50
	DC 7.40V	63	50
Result		Pass	

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Test Result of 12.5 KHz Channel Separation (155.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	74	60
T min ( -10°C )	DC 6.29V	65	50
	DC 7.40V	64	50
T Max ( 40°C )	DC 6.29V	63	50
	DC 7.40V	62	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (155.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	70	60
T min ( -10°C )	DC 6.29V	68	50
	DC 7.40V	65	50
T Max ( 40°C )	DC 6.29V	67	50
	DC 7.40V	69	50
Result		Pass	

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Test Result of 12.5 KHz Channel Separation (173.975MHz) at unwanted signal frequency above wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	75	60
T min ( -10°C )	DC 6.29V	66	50
	DC 7.40V	65	50
T Max ( 40°C )	DC 6.29V	64	50
	DC 7.40V	68	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (173.975MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	70	60
T min ( -10°C )	DC 6.29V	63	50
	DC 7.40V	66	50
T Max ( 40°C )	DC 6.29V	69	50
	DC 7.40V	64	50
Result		Pass	

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

**UHF:**

Test Result of 12.5 KHz Channel Separation (400.025MHz) at unwanted signal frequency above wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	73	60
T min ( -10°C )	DC 6.29V	65	50
	DC 7.40V	64	50
T Max ( 40°C )	DC 6.29V	73	50
	DC 7.40V	72	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (400.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	75	60
T min ( -10°C )	DC 6.29V	74	50
	DC 7.40V	73	50
T Max ( 40°C )	DC 6.29V	72	50
	DC 7.40V	74	50
Result		Pass	

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Result of 12.5 KHz Channel Separation (430.025MHz) at unwanted signal frequency above wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	73	60
T min ( -10°C )	DC 6.29V	76	50
	DC 7.40V	78	50
T Max ( 40°C )	DC 6.29V	74	50
	DC 7.40V	71	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (430.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	75	60
T min ( -10°C )	DC 6.29V	74	50
	DC 7.40V	71	50
T Max ( 40°C )	DC 6.29V	72	50
	DC 7.40V	75	50
Result		Pass	

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Test Result of 12.5 KHz Channel Separation (450.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	72	60
T min ( -10°C )	DC 6.29V	65	50
	DC 7.40V	66	50
T Max ( 40°C )	DC 6.29V	68	50
	DC 7.40V	71	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (450.025MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	75	60
T min ( -10°C )	DC 6.29V	72	50
	DC 7.40V	65	50
T Max ( 40°C )	DC 6.29V	72	50
	DC 7.40V	71	50
Result		Pass	

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Test Result of 12.5 KHz Channel Separation (479.975MHz) at unwanted signal frequency above wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	75	60
T min ( -10°C )	DC 6.29V	73	50
	DC 7.40V	65	50
T Max ( 40°C )	DC 6.29V	68	50
	DC 7.40V	71	50
Result		Pass	

Test Result of 12.5 KHz Channel Separation (479.975MHz) at unwanted signal frequency below wanted signal frequency			
Test Condition		Result Measured ( dB )	Limit ( dB )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	72	60
T min ( -10°C )	DC 6.29V	68	50
	DC 7.40V	66	50
T Max ( 40°C )	DC 6.29V	69	50
	DC 7.40V	63	50
Result		Pass	

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## 7.5 SPURIOUS RESPONSE REJECTION

### LIMIT

#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.5.4**

The spurious response rejection of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.5.1, at any frequency separated from the nominal frequency of the receiver by two channels or more, the spurious response rejection ratio shall not be less than 70.0 dB.

calculation of the "limited frequency range":

- the limited frequency range is defined as the frequency of the local oscillator signal (fLO) applied to the first mixer of the receiver plus or minus the sum of the intermediate frequencies (f1, ..., fn) and a half the switching range (sr) of the receiver;

- hence, the frequency fl of the limited frequency range is:

$$f_{LO} - \sum_{j=1}^{j=n} f_{ij} - \frac{sr}{2} \leq f_l \leq f_{LO} + \sum_{j=1}^{j=n} f_{ij} + \frac{sr}{2}$$

calculation of frequencies outside the limited frequency range:

a calculation of the frequencies at which spurious responses can occur outside the range determined in a) is made for the remainder of the frequency range of interest, as appropriate;

- the frequencies outside the limited frequency range are equal to the harmonics of the frequency of the local oscillator signal (fLO) applied to the first mixer of the receiver plus or minus the first intermediate frequency (f1) of the receiver;

- hence, the frequencies of these spurious responses are:

$nf_{LO} \pm f_1$

- where n is an integer greater than or equal to 2;

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182B	MY53050647	Aug. 03, 2022	Aug. 02, 2023

### TEST CONFIGURATION

The same as described in section 7.3

### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.5.3 for the measurement method.

## TEST RESULTS

### VHF:

The Bottom Channel (136.025 MHz) Test Result of 12.5 KHz Channel Separation	
Test Result ( dB )	Limit ( dB )
98.3	At least 70
Result	Pass

The Top Channel (173.975MHz) Test Result of 12.5 KHz Channel Separation	
Test Result ( dB )	Limit ( dB )
98.2	At least 70
Result	Pass

### UHF:

The Bottom Channel (400.025MHz) Test Result of 12.5 KHz Channel Separation	
Test Result ( dB )	Limit ( dB )
97.3	At least 70
Result	Pass

The Top Channel (479.975 MHz) Test Result of 12.5 KHz Channel Separation	
Test Result ( dB )	Limit ( dB )
98.5	At least 70
Result	Pass

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## 7.6 INTER MODULATION RESPONSE REJECTION

### LIMIT

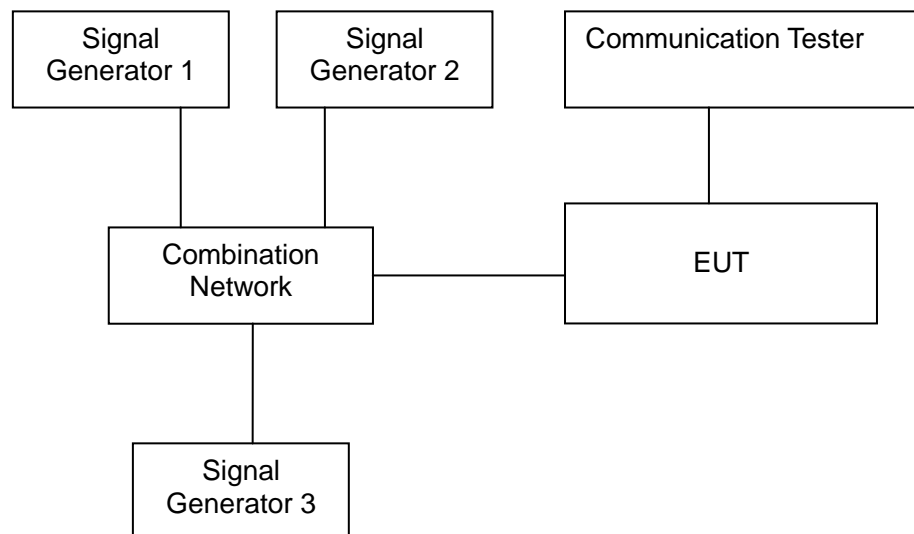
#### **ETSI EN 300 086(V2.1.2) Sub-clause 8.6.3**

The inter modulation response rejection of the receiver as defined as in ETSI EN 300 086 Sub-clause 8.6.1, shall not be less than the ratio of 70.0 dB for Base Station and 65.0 dB for mobile and hand portable stations.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182B	MY53050647	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	E4421B	US39340815	Aug. 03, 2022	Aug. 02, 2023

### TEST CONFIGURATION



### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.6.2 for the measurement method.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by [agc01@agccert.com](mailto:agc01@agccert.com).

## TEST RESULTS

### VHF:

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
136.025	136.025+0.025	136.025+0.050	72.5	At least 65.0	Pass
136.025	136.025+0.050	136.025+0.10	73.1	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
136.025	136.025-0.025	136.025-0.050	71.2	At least 65.0	Pass
136.025	136.025-0.050	136.025-0.10	72.6	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
173.975	173.975+0.025	173.975+0.050	72.9	At least 65.0	Pass
173.975	173.975+0.050	173.975+0.10	74.5	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
173.975	173.975-0.025	173.975-0.050	72.2	At least 65.0	Pass
173.975	173.975-0.050	173.975-0.10	73.4	At least 65.0	Pass

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**UHF:**

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
400.025	400.025+0.025	400.025+0.050	72.2	At least 65.0	Pass
400.025	400.025+0.050	400.025+0.10	75.1	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
400.025	400.025-0.025	400.025-0.050	73.4	At least 65.0	Pass
400.025	400.025-0.050	400.025-0.10	75.8	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
479.975	479.975+0.025	479.975+0.050	72.4	At least 65.0	Pass
479.975	479.975+0.050	479.975+0.10	74.0	At least 65.0	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel					
Wanted Signal Channel (MHz)	Unmodulated Unwanted Signal Frequency (MHz)	Modulated Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
479.975	479.975-0.025	479.975-0.050	74.1	At least 65.0	Pass
479.975	479.975 -0.050	479.975-0.10	76.6	At least 65.0	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

## 7.7 BLOCKING OR DESENSITIZATION

### LIMIT

#### **ETSI EN 300 086(V2.1.2) Sub-clause 5.2.8**

The blocking or desensitization of the receiver as defined in ETSI EN 300 086 Sub-clause 8.7.1, for any frequency within the specified range, shall not be less than 84.0 dB, except at frequencies on which spurious response are found

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182B	MY53050647	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5171B	MY53050474	Aug. 03, 2022	Aug. 02, 2023

### TEST CONFIGURATION

The same as described in section 7.2

### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.7.2 for the measurement method.

### TEST RESULTS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



**VHF:**

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
136.025	136.025+1	93.4	At least 84	Pass
136.025	136.025+2	91.6	At least 84	Pass
136.025	136.025+5	90.9	At least 84	Pass
136.025	136.025+10	92.8	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
136.025	136.025-1	93.3	At least 84	Pass
136.025	136.025-2	94.5	At least 84	Pass
136.025	136.025-5	92.9	At least 84	Pass
136.025	136.025-10	91.1	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
173.975	173.975+1	96.5	At least 84	Pass
173.975	173.975+2	92.6	At least 84	Pass
173.975	173.975+5	94.7	At least 84	Pass
173.975	173.975+10	91.2	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
173.975	173.975-1	92.5	At least 84	Pass
173.975	173.975-2	93.6	At least 84	Pass
173.975	173.975-5	91.9	At least 84	Pass
173.975	173.975-10	93.0	At least 84	Pass

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**UHF:**

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
400.025	400.025+1	92.5	At least 84	Pass
400.025	400.025+2	94.1	At least 84	Pass
400.025	400.025+5	91.9	At least 84	Pass
400.025	400.025+10	91.2	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
400.025	400.025-1	93.2	At least 84	Pass
400.025	400.025-2	93.5	At least 84	Pass
400.025	400.025-5	91.9	At least 84	Pass
400.025	400.025-10	93.5	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Above Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
479.975	479.975+1	92.6	At least 84	Pass
479.975	479.975+2	95.0	At least 84	Pass
479.975	479.975+5	93.4	At least 84	Pass
479.975	479.975+10	92.8	At least 84	Pass

Test Result of 12.5 KHz Channel Separation At Below Wanted Signal Channel				
Wanted Signal Channel (MHz)	Unwanted Signal Frequency (MHz)	Test Result ( dB )	Limit ( dB )	Result
479.975	479.975-1	91.9	At least 84	Pass
479.975	479.975-2	93.6	At least 84	Pass
479.975	479.975-5	92.5	At least 84	Pass
479.975	479.975-10	91.4	At least 84	Pass

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## 7.8 SPURIOUS RADIATIONS

### LIMIT

#### ETSI EN 300 086(V2.1.2) Sub-clause 8.8.4

The spurious radiation of the receiver as defined in ETSI EN 300 086 Sub-clause 8.8.1, shall not exceed the values given in tables 7 and 8

Table 7: Conducted components

Frequency Range	9 KHz to 1GHz	Above 1GHz to 4GHz, or above 1GHz to 12.75GHz
Limit	2.0 nW (-57 dBm )	20 nW ( -47 dBm )

Table 8: Radiated emissions

Frequency Range	30 MHz to 1GHz	Above 1GHz to 12.75GHz
Limit	2.0 nW (-57 dBm )	20 nW ( -47 dBm )

### MEASUREMENT EQUIPMENT USED

Radiated Emission Test Site # 4					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI TEST RECEIVER	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
Preamplifier Assembly	ETS	3117PA	00225134	Sep. 01, 2020	Aug. 31, 2023
SPECTRUM ANALYZER	AGILENT	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
ANTENNA	R&S	VULB9168	D69250	Apr. 28, 2021	Apr. 27, 2023

**Remark:** Each piece of equipment is scheduled for calibration once a year. Except for the antenna was once two years.

### TEST CONFIGURATION

The same as described in section 6.6

### TEST PROCEDURE

- Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
- Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 8.8.2 and 8.8.3 for the measurement method.

### TEST RESULTS

**Conducted Measurement (9 KHz to 12.75GHz) --- PASS**

### TEST RESULTS

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**TEST RESULT**  
**TEST RESULT OF 12.5 KHz CHANNEL SEPARATION**  
**Below 1G**

Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
30MHz - 1 GHz	--	V	--	--	--	--	-36	At least 20 dB down than the limit
30MHz - 1 GHz	--	H	--	--	--	--	-36	

Remark:

- (1) Emission Level (dBm) = SG O/P-Cable + Ant Gain
- (2) Measuring frequencies from 30MHz - 1 GHz.
- (3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

**Above 1G**

Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Above 1 GHz	--	V	--	--	--	--	-30	At least 20 dB down than the limit
Above 1 GHz	--	H	--	--	--	--	-30	

Remark:

- (1) Emission Level (dBm) = SG O/P-Cable + Ant Gain
- (2) Measuring frequencies from 1 GHz to the 12.75GHz.
- (3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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The Radiated Measurement are performed to the three channels (the bottom channel, the middle channel and the top channel) at each channel separation (12.5 KHz), the datum recorded below is the worst case for each channel separation.

The all Channels for 12.5 KHz Channel Separation

Frequency (MHz)	Reading level (dBUV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Below 1 GHz	--	V	--				-36	At least 20 dB down than the limit
Above 1 GHz	--	V	--				-30	
Below 1 GHz	--	H	--				-36	
Above 1 GHz	--	H	--				-30	

Remark:

- (1) Emission Level (dBm) = SG O/P-Cable + Ant Gain
- (2) Measuring frequencies from 30 MHz to the 12.75GHz.
- (3) Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

**TEST RESULT OF 12.5 KHz CHANNEL SEPARATION--Standby Mode**

Frequency (MHz)	Test result (dBm)	Limit (dBm)	Margin (dB)
9KHz - 1 GHz	--	-57	At least 20 dB down than the limit
1 GHz - 4GHz	--	-47	

Remark:

- (1) Margin (dBm) = Limit-test result
- (2) Measuring frequencies from 9KHz - 12.75GHz.
- (3) Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the power is too small to be measured.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

## 7.9 MAXIMUM USABLE SENSITIVITY (CONDUCTED) IN EN 300 219

### LIMIT

#### **ETSI EN 300 219(V 2.1.1) Sub-clause 9.2.3**

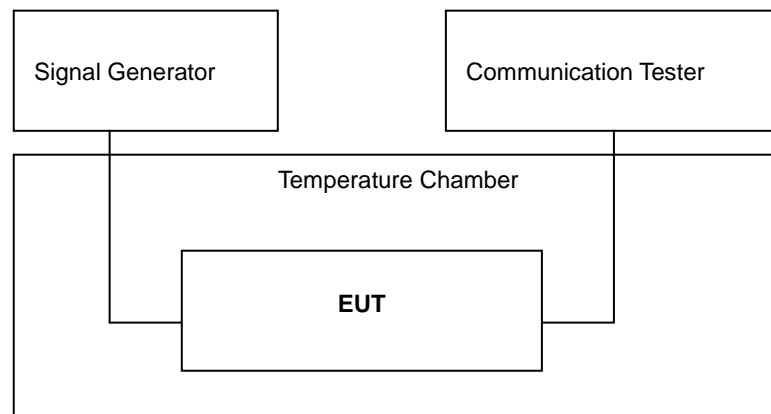
The maximum usable sensitivity (conducted) of the receiver as defined as in ETSI EN 300 219 Sub-clause 9.2.1:

The maximum usable sensitivity shall not exceed an electromotive force (emf) of +3.0 dBuV under normal test conditions, and an emf of +9.0 dBuV under extreme test conditions.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
H&T Chamber	EXPERY	TN-400	TN2007SR038	Jun. 06, 2022	Jun. 05, 2023
Signal Generator	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

### TEST CONFIGURATION



### TEST PROCEDURE

3. Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 6.3 and 6.4 for the test conditions.
4. Please refer to ETSI EN 300 219 (V2.1.1) Sub-clause 9.2.2 for the measurement method.

## TEST RESULTS

### VHF:

Test Result of 12.5 KHz Channel Separation (137.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.11	3
T min ( -10°C )	DC 6.29V	6.35	9
	DC 7.40V	6.42	9
T Max ( 40°C )	DC 6.29V	6.22	9
	DC 7.40V	6.74	9
Result		Pass	

Test Result of 12.5 KHz Channel Separation (155.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.63	3
T min ( -10°C )	DC 6.29V	6.48	9
	DC 7.40V	6.91	9
T Max ( 40°C )	DC 6.29V	6.74	9
	DC 7.40V	6.50	9
Result		Pass	

Test Result of 12.5 KHz Channel Separation (173.975MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.28	3
T min ( -10°C )	DC 6.29V	6.63	9
	DC 7.40V	6.74	9
T Max ( 40°C )	DC 6.29V	6.69	9
	DC 7.40V	6.63	9
Result		Pass	

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**UHF:**

Test Result of 12.5 KHz Channel Separation (400.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.74	3
T min ( -10°C )	DC 6.29V	6.66	9
	DC 7.40V	6.70	9
T Max ( 40°C )	DC 6.29V	6.52	9
	DC 7.40V	6.33	9
Result		Pass	

Test Result of 12.5 KHz Channel Separation (450.025MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.58	3
T min ( -10°C )	DC 6.29V	6.96	9
	DC 7.40V	5.75	9
T Max ( 40°C )	DC 6.29V	6.82	9
	DC 7.40V	6.79	9
Result		Pass	

Test Result of 12.5 KHz Channel Separation (479.975MHz)			
Test Condition		Result Measured ( dBuV )	Limit ( dBuV )
Temperature ( °C )	Voltage ( V )		
T Nor ( 25°C )	DC 7.40V	2.14	3
T min ( -10°C )	DC 6.29V	6.61	9
	DC 7.40V	6.58	9
T Max ( 40°C )	DC 6.29V	6.73	9
	DC 7.40V	5.64	9
Result		Pass	

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## 8. DUPLEX OPERATION (NOT APPLICABLE)

### 8.1 RECEIVER DESENSITIZATION (WITH SIMULTANEOUS TRANSMISSION AND RECEPTION)

#### LIMIT

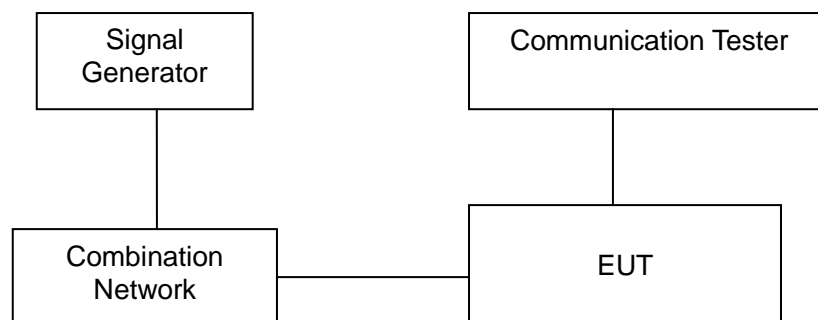
##### **ETSI EN 300 086(V2.1.2) Sub-clause 9.1.4**

The desensitization is defined in ETSI EN 300 086 Sub-clause 9.1.1, shall not exceed 3.0 dB and the limit of maximum usable sensitivity under normal test conditions shall be met.

#### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 9.1.2 and 9.1.3 for the measurement method.

#### TEST RESULTS

N/A



## 8.2 RECEIVER SPURIOUS RESPONSE REJECTION (WITH SIMULTANEOUS TRANSMISSION AND RECEPTION)

### LIMIT

#### ETSI EN 300 086(V2.1.2) Sub-clause 9.2.3

The spurious response rejection under duplex operation is a measure of the capability of the receiver to achieve a specific spurious response rejection ratio when receiving a wanted modulated signal in the presence of:+

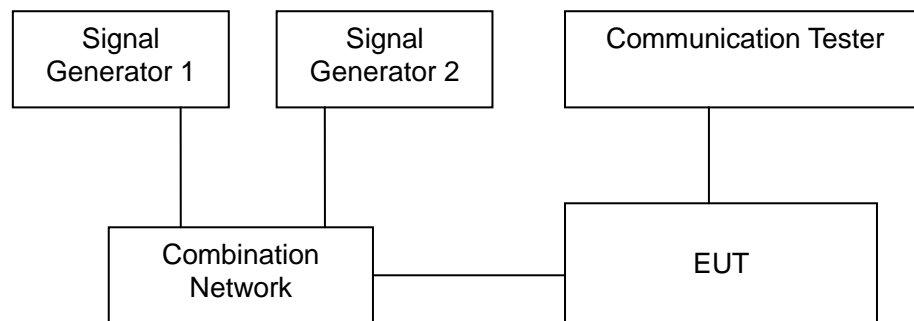
- a) an unwanted signal at any other frequency, at which a response may be obtained; and
- b) the unmodulated signal of the transmitter operation at duplex frequency distance, at the rated output power and attenuated by the duplex filter or by the distance between the antennas.

At any frequency separated from the nominal frequency of the receiver by two channels or more, the spurious response rejection ratio shall be greater than 67.0 dB.

### MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	N5182B	MY53050647	Aug. 03, 2022	Aug. 02, 2023
Signal Generator	Aglient	E4421B	MY43351603	Feb. 17, 2023	Feb. 16, 2024

### TEST CONFIGURATION



### TEST PROCEDURE

1. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 5.3 for the test conditions.
2. Please refer to ETSI EN 300 086 (V2.1.2) Sub-clause 9.2.2 for the measurement method.

### TEST RESULTS

N/A

## APPENDIX I: PHOTOGRAPHS OF TEST SETUP

### RADIATED SPURIOUS EMISSION TEST SETUP



RADIATED SPURIOUS EMISSION ABOVE 1G TEST SETUP



**----END OF REPORT----**

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2. Any report issued by Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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Tel: +86-755 2523 4088 E-mail: [agc@agccert.com](mailto:agc@agccert.com) Web: <http://www.agccert.com/>