



# TEST REPORT

**Reference No.**..... : WTX21X04033412W-8  
**Manufacturer**..... : Tersus GNSS Inc  
**Address**..... : Room 305, Building 1, No.1228 Jinhu Road, China (Shanghai) Pilot Free Trade Zone  
**Product**..... : TD-LTE Wireless Data Terminal  
**Test Model**..... : TC50  
**Standards**..... : **ETSI EN 300 330 V2.1.1 (2017-02)**  
**Date of Receipt sample**.... : Apr.15, 2021  
**Date of Test**..... : Apr.15, 2021 to May.14, 2021  
**Date of Issue**..... : May.14, 2021  
**Test Result**..... : **Pass**

**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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## Report version

Version No.	Date of issue	Description
Rev.00	May.14, 2021	Original
/	/	/

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## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Manufacturer: Tersus GNSS Inc  
 Address of manufacturer: Room 305, Building 1, No.1228 Jinhua Road, China  
 (Shanghai)Pilot Free Trade Zone

General Description of EUT	
Product Name:	TD-LTE Wireless Data Terminal
Trade Name:	Tersus
Model No.:	TC50
Adding Model(s):	/
Rated Voltage:	DC3.8V
Battery Capacity:	7000mAh
Adapter Model:	GQ24-090200-AX INPUT:AC100-240V, 50/60Hz, 1.0A Output:DC9V, 2.0A
Software Version:	V.SN50.2.1.26.2021041411
Hardware Version:	SD55-D3_Main board_Rev.A1
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	13.56MHz
Radiated H-Field:	4.29dBuA/m(@3m)
Type of Antenna:	Integral Antenna
Antenna Gain:	-2.34dBi
Transmitter Product Class	1



➤ Transmitter Product Class

Product Class	Description of transmitter	Antenna to be tested	Frequency range	Loop antenna area	Length of antenna	Customization of antenna design allowed	Transmitter carrier Output limits	Spurious emission s limits
1	Inductive loop coil transmitter	Integral antenna ( antenna type 1) or dedicated antenna supplied with the equipment ( antenna type 2); ( see note 1)	9kHz to 30MHz	< 30m <sup>2</sup>	< $\lambda/4$ ( 75metres/ f where f is in MHz )or <30m, whichever is shorter	No	H-field at 10m	H-field at 10m
2	Inductive loop coil transmitter	Two representative Antennas supplied with the equipment (see note 2)	9kHz to 30MHz	< 30m <sup>2</sup>	< $\lambda/4$ ( 75metres/ f where f is in MHz )or <30m, whichever is shorter	Yes ( see note 3)	H-field at 10m	H-field at 10m
3	Customize d large size loop antennas only	Test without an antenna by using an artificial antenna	9kHz to 135kHz	>30m <sup>2</sup>	n.a	Yes	Current in artificial antenna	Current in artificial antenna
4	E-field transmitter	Each type of antenna to be used	9kHz to 30MHz	n.a	n.a	n.a	H-field at 10m	H-field at 10m

NOTE 1: Where a manufacturer provides a range of standard antennas, the equipment will be tested as Product Class 1 equipment, with the antenna(s) attached. The measurements shall be repeated for each antenna.

NOTE 2: The two antennas shall meet the manufacturer's design rules published in the equipment manual and shall have maximum and minimum loop areas respectively. Both antennas shall have the maximum magnetic dipole moment as declared by the manufacturer.

NOTE 3: Customization is only allowed according to the manufacturer's antenna design rules published in the equipment manual.

NOTE 4: On-site measurements may be required.



## 1.2 Test Standards

The tests were performed according to following standards:

**ETSI EN 300 330 V2.1.1 (2017-02):** Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the immunity should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with ETSI EN 300330,

The equipment under test (EUT) was configured to measure its highest possible emission level. For more detail refer to the Operating Instructions.

The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

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### 1.4 EUT Setup and Test Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity level. The test modes were adapted according to the operation manual for use, the EUT was operated in the engineering mode to fix the Tx/Rx frequency that was for the purpose of the measurements, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	Transmitting	/
TM2	Receiving	/

Test Conditions					
	Normal	LTLV	LTHV	HTHV	HTLV
Temperature ( °C)	25	-20	-20	35	35
Voltage (V)	3.8	3.5	4.35	4.35	3.5
Relative Humidity:			45 %.		
ATM Pressure:			1019 mbar		

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/



### 1.5 Measurement Uncertainty

Measurement uncertainty		
Parameter	Uncertainty	Note
Radiated H-field	$\pm 3.0\text{dB}$	(1)
Permitted range of operating frequency	10Hz	(1)
Permitted frequency range of the modulation bandwidth	$\pm 10\text{Hz}$	(1)
Radiated spurious emissions	0.9-30MHz $\pm 5.2\text{dB}$	(1)
	30-200MHz $\pm 4.52\text{dB}$	(1)
	0.2-1GHz $\pm 5.56\text{dB}$	(1)
	1-6GHz $\pm 3.84\text{dB}$	(1)
	6-18GHz $\pm 3.92\text{dB}$	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

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## 1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	N9020A	US47140102	2021-03-27	2022-03-26
Signal Generator	Agilent	83752A	3610A01453	2021-03-27	2022-03-26
Vector Signal Generator	Agilent	N5182A	MY47070202	2021-03-27	2022-03-26
Power Sensor	Agilent	U2021XA	MY54250019	2021-03-27	2022-03-26
Power Sensor	Agilent	U2021XA	MY54250021	2021-03-27	2022-03-26
Simultaneous Sampling	Agilent	U2531A	TW54243509	2021-03-27	2022-03-26
Spectrum Analyzer	Agilent	E4407B	MY41440400	2021-04-27	2022-04-26
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2021-03-27	2022-03-26
Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2021-03-27	2022-03-26
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2021-04-12	2022-04-11
Amplifier	Agilent	8447F	3113A06717	2021-04-12	2022-04-11
Amplifier	C&D	PAP-1G18	2002	2021-04-12	2022-04-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2021-03-20	2023-03-19
Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2021-03-19	2023-03-18
Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2021-04-27	2022-04-26
Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-19	2023-03-18
Communication Tester	HP	8921A	/	2021-04-12	2022-04-11
Temperature&Humidity Chamber	/	KTHC-415TBS	/	2020-12-26	2021-12-25
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	148650	2021-03-27	2022-03-26

### Software List

Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1

\*Remark: indicates software version used in the compliance certification testing



## 2. SUMMARY OF TEST RESULTS

Standards	Reference	Description of Test Item	Result
ETSI EN 300 330	4.3.1	Permitted range of operating frequency	Pass
	4.3.2	Permitted frequency range	Pass
	4.3.3	Modulation bandwidth	Pass
	4.3.4	Radiated H-field	Pass
	4.3.5	Transmitter RF carrier current	N/A
	4.3.6	Transmitter radiated E-field	N/A
	4.3.7	Transmitter conducted spurious emissions	N/A
	4.3.8	Radiated spurious emissions at frequencies below 30 MHz	Pass
	4.3.9	Radiated spurious emissions at frequencies above 30 MHz	Pass
	4.3.10	Transmitter Frequency stability	Pass
	4.4.2	Receiver spurious emissions	Pass
	4.4.3	Adjacent channel selectivity	N/A
	4.4.4	Receiver blocking or desensitization	N/A

Pass: The EUT complies with the essential requirements in the standard  
 Fail: The EUT does not comply with the essential requirements in the standard  
 N/A: not applicable





### 3. PERMITTED RANGE OF OPERATING FREQUENCY

#### 3.1 Standard Applicable

##### 1. Permitted range of operating frequencies

According to EN 300330 section 4.3.1, The permitted range of operating frequencies is the frequency range over which the equipment is authorized to operate.

##### 2. Operating frequency range

The operating frequency range (OFR) is the frequency range over which the EUT is transmitting. The operating frequency range of the EUT is determined by the lowest (fL) and highest frequency (fH) as occupied by the power envelope.

With the centre frequency of the OFR as:  $F_C = (F_H + F_L) / 2$ .

An EUT could have more than one operating frequency range

#### 3.2 Test Procedure

The permitted range of operating frequencies used by the EUT shall be declared by the manufacturer. The operating frequency range(s) will be tested considered under in clause 4.3.2.

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

Table 1: Short Range Devices within the 9 kHz to 30 MHz permitted frequency bands

	Frequency Bands/frequencies	Applications
Transmit and Receive	9 kHz to 90 kHz	Inductive devices, Generic use
Transmit and Receive	90 kHz to 119 kHz	Inductive devices, Generic use
Transmit and Receive	119 kHz to 140 kHz	Inductive devices, Generic use
Transmit and Receive	140 kHz to 148,5 kHz	Inductive devices, Generic use
Transmit and Receive	148,5 kHz to 5 MHz	Inductive devices, Generic use
Transmit and Receive	400 kHz to 600 kHz	RFID only
Transmit and Receive	5 MHz to 30 MHz	Inductive devices, Generic use
Transmit and Receive	3 155 kHz to 3 400 kHz	Inductive devices, Generic use
Transmit and Receive	984 kHz to 7 484 kHz (Note 3, Centre frequency is 4 234 kHz)	Inductive devices, Railway applications
Transmit and Receive	4 516 kHz	Inductive devices, Railway applications
Transmit and Receive	6 765 kHz to 6 795 kHz	Inductive devices, Generic use
Transmit and Receive	7 400 kHz to 8 800 kHz	Inductive devices, Generic use
Transmit and Receive	10 200 kHz to 11,000 MHz	Inductive devices, Generic use
Transmit and Receive	11,810 MHz to 15,310 MHz (Centre frequency is 13,56 MHz)	RFID only
Transmit and Receive	12,5 MHz to 20 MHz	Inductive devices, Wireless healthcare
Transmit and Receive	13,553 MHz to 13,567 MHz	Inductive devices, Generic use
Transmit and Receive	26,957 MHz to 27,283 MHz	Inductive devices, Generic use
Transmit and Receive	27,090 MHz to 27,100 MHz	Inductive devices, Railway applications





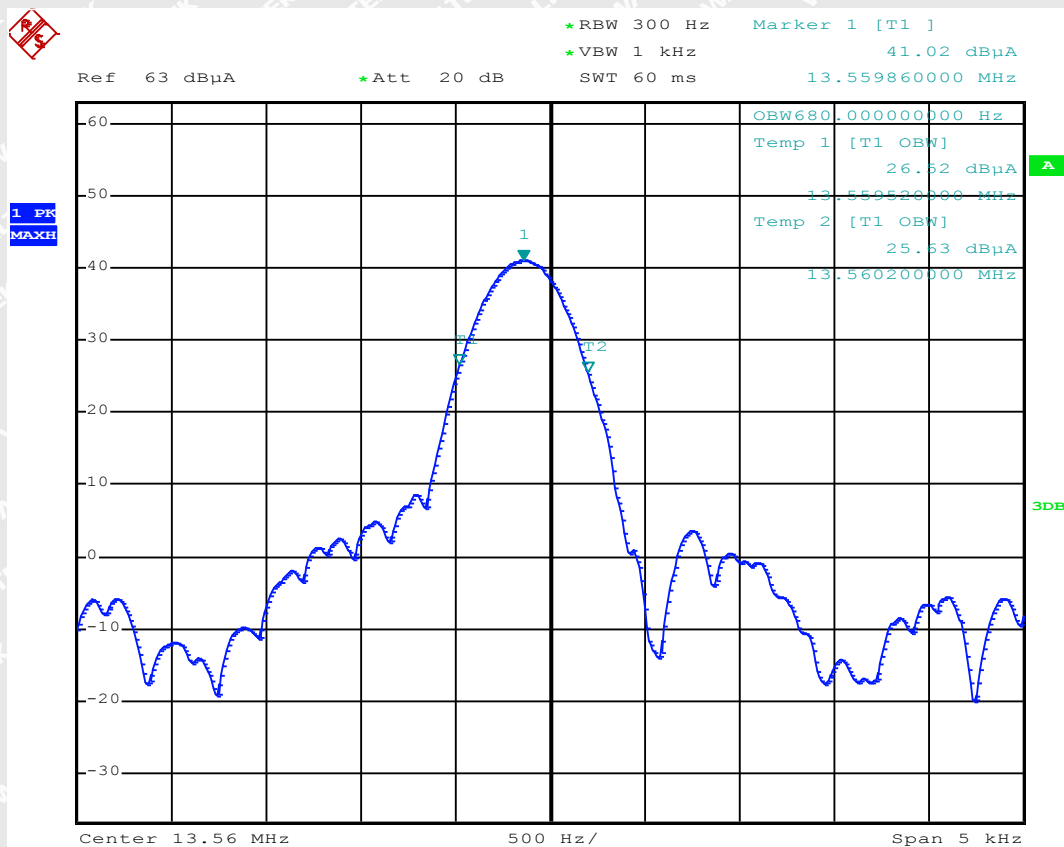
NOTE 1: In addition, it should be noted that other frequency bands may be available in a country within the frequency range 9 kHz to 30 MHz.

NOTE 2: On non-harmonised parameters, national administrations may impose certain conditions such as the type of modulation, frequency, channel/frequency separations, maximum transmitter radiated power, duty cycle, and the inclusion of an automatic transmitter shut-off facility, as a condition for the issue of an Individual Rights for use of spectrum or General Authorization, or as a condition for use under "licence exemption" as it is in most cases for Short Range Devices.

NOTE 3: Transmitting only on receipt of a Balise/Eurobalise tele-powering signal from a train.

### 3.3 Summary of Test Results/Plots

Test operating frequencies(MHz)	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	Limit (MHz)	Result
13.56	13.55952	13.56020	13.552MHz ≤ F <sub>L</sub> ≤ F <sub>H</sub> ≤ 13.567MHz	PASS



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## 4. Modulation Bandwidth

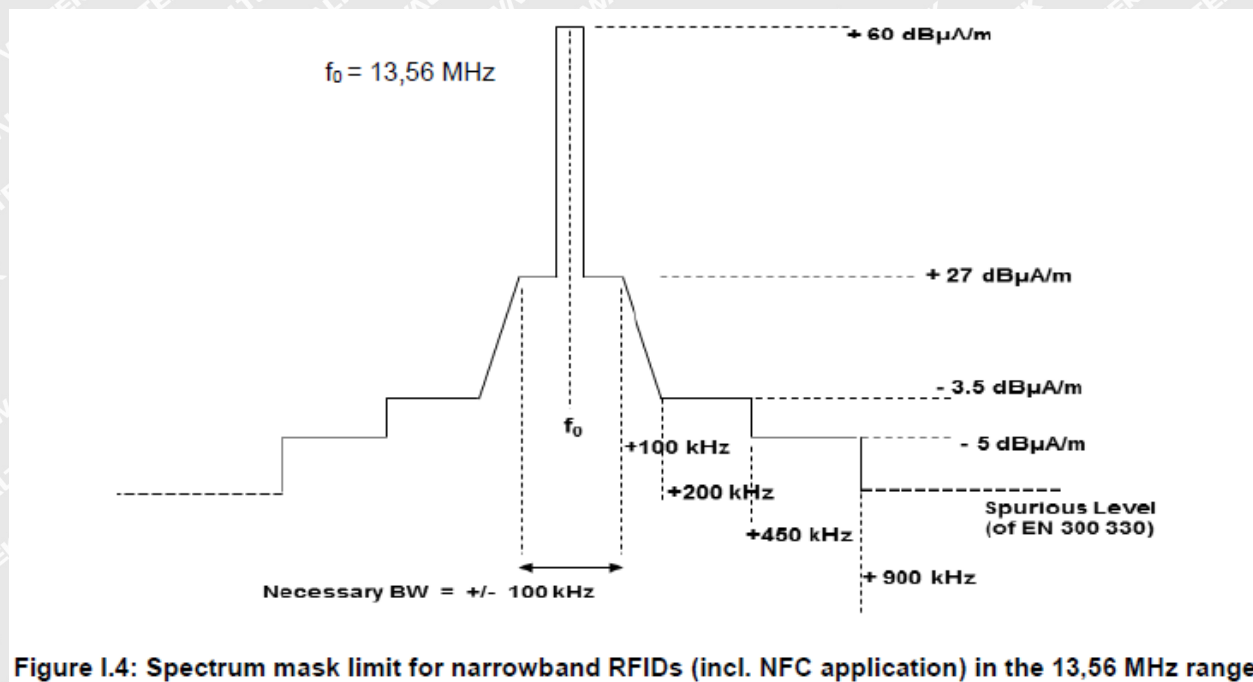
### 4.1 Standard Applicable

The modulation bandwidth contains all associated side bands above the following level:

- a) For carrier frequencies below 135 kHz:
  - 23 dB below the carrier, for RFID within the transmitter emission boundary of figure I.1, and for RFID and EAS systems within the transmitter mask of figures I.2, I.3 and I.4, see CISPR 16-1-4 [2] or the appropriate spurious limit as defined in clauses 4.3.7, 4.3.8, 4.3.9.
- b) For carrier frequencies in the range 135 kHz to 30 MHz:
  - 15 dB below the carrier or the appropriate spurious limit as defined in clauses 4.3.7, 4.3.8, 4.3.9.

The modulation bandwidth shall be within the assigned frequency band see table 1 or  $\pm 7,5\%$  of the carrier frequency whichever is the smallest. For RFID and EAS Systems, the modulation bandwidth shall be within the transmitter emission boundary of figures I.1, I.2, I.3 and I.4.

For further information, see CEPT/ERC/REC 70-03 [i.1] or ERC/ECC/CEPT Decisions as implemented through National Radio Interfaces (NRI) and additional NRI as relevant.



### 4.2 Test Procedure

The transmitter shall be connected to an artificial antenna or if the transmitter has an integral antenna, a test fixture shall be used (see clause 5.10). The RF output of the equipment shall be connected to a spectrum analyser via a  $50\ \Omega$  variable attenuator.



The transmitter shall be operated at the nominal carrier power or field strength measured under normal test conditions in clause 4.3.4. The attenuator shall be adjusted to an appropriate level displayed at the spectrum analyser screen.

The transmitter shall be modulated with standard test modulation (see clauses 5.8.1 and 5.8.2). If the equipment cannot be modulated externally, the internal modulation shall be used.

For transmitters using a continuous wideband swept carrier the measurement shall be made with the sweep on. The output of the transmitter, with or without test fixture, shall be measured by using a spectrum analyser with a resolution bandwidth appropriate to accept all major side bands. The power level calibration of the spectrum analyser shall then be related to the power level or field strength measured in clause 4.3.3. The calculation will be used to calculate the absolute level of the sideband power.

The test laboratory shall ensure that the spectrum analyser's span is sufficiently wide enough to ensure that the carrier and all its major side bands are captured.

The frequency of the upper and lower points, where the displayed power envelope of the modulation including frequency drift is equal to the appropriate level defined in clause 4.3.3 is recorded as the modulation bandwidth.

#### 4.3 Summary of Test Results/Plots

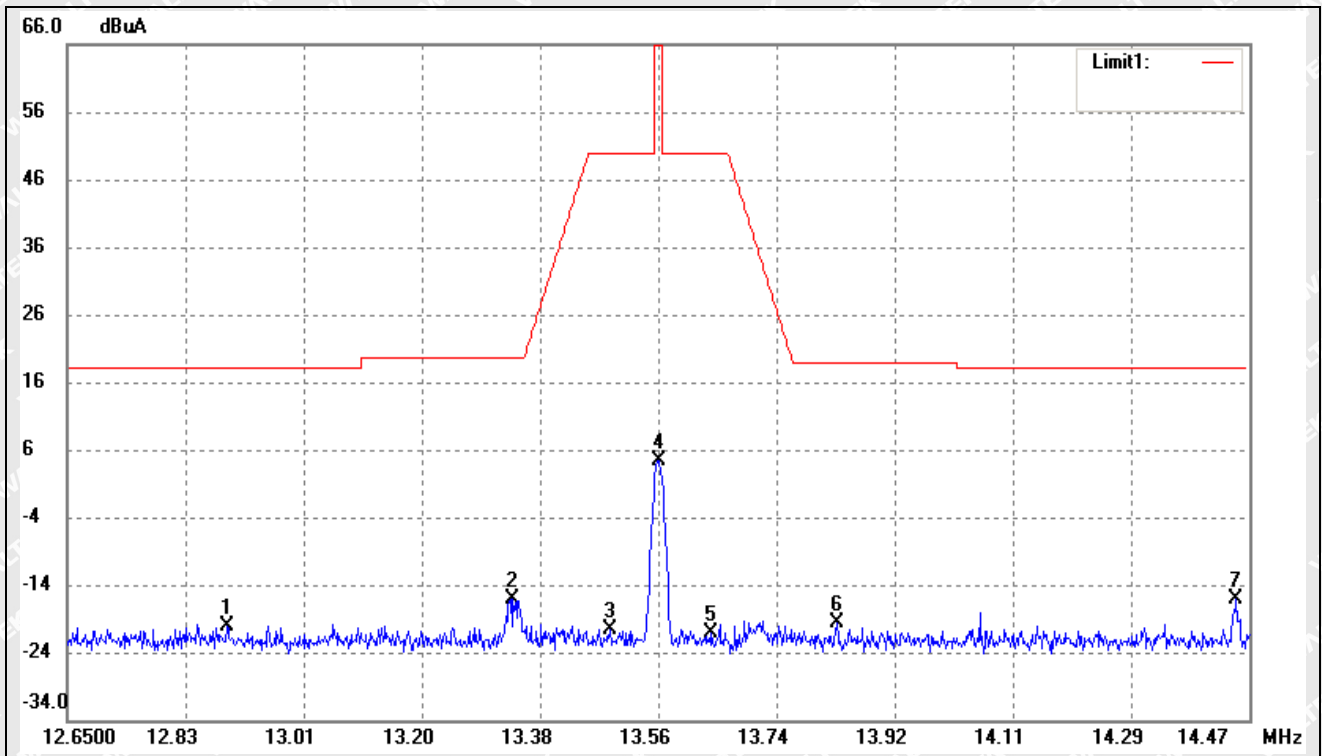
- Pre-scan EUT X,Y,Z axis, and find the worst case at X axis.

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Polarity:	X
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No.	Frequency (MHz)	Reading@3m (dBuA/m)	Correct (dB)	Result@10m (dBuA/m)	Limit@10m (dBuA/m)	Margin (dB)
1	12.8957	4.91	-25.10	-20.19	18.20	-38.39
2	13.3361	9.11	-25.13	-16.02	19.60	-35.62
3	13.4854	4.56	-25.15	-20.59	50.00	-70.59
4	13.5600	29.44	-25.15	4.29	83.00	-78.71
5	13.6419	3.99	-25.16	-21.17	50.00	-71.17
6	13.8348	5.64	-25.19	-19.55	19.00	-38.55
7	14.4500	9.04	-25.26	-16.22	18.20	-34.42

Note 1:  $H_{3m} = H_{10m} + C_3$  refer to ETSI EN300 330 Annex H.2



## 5. Radiated H-Field

### 5.1 Standard Applicable

The Transmitter H-field requirements only applies for equipment under product class 1 and class 2 as defined in clause 6.1.2 and clause B.2.

The frequency ranges and limits of the present document are shown in table 2. The limits are based on the European Commission Decision for SRDs [i.10], CEPT/ERC/REC 70-03 [i.1].

Table 2: H-field limits at 10 m

Frequency range (MHz)	H-field strength limit (Hf) dB $\mu$ A/m at 10 m or specified in mW e.r.p.
$0,009 \leq f < 0,090$	72 descending 3 dB/oct above 0,03 MHz or according to note 1 (see note 5)
$0,09 \leq f < 0,119$	42
$0,119 \leq f < 0,135$	66 descending 3 dB/oct above 0,119 MHz or according to note 1 (see notes 3 and 5)
$0,135 \leq f < 0,140$	42
$0,140 \leq f < 0,1485$	37,7
$0,1485 \leq f < 30$	-5 (see note 4)
$0,315 \leq f < 0,600$	-5
$3,155 \leq f < 3,400$	13,5
4,234	9 (see note 9)
4,516	7
$7,400 \leq f < 8,800$	9
$10,2 \leq f < 11,00$	9
$12,5 \leq f < 20$	-7
$\leq \leq$	42 (see notes 3 and 7)
$26,957 \leq f \leq 27,283$	42 (see note 3)
$13,410 \leq f \leq 13,553, 13,567 \leq f \leq 13,710$	9 (see note 6)
$13,110 \leq f \leq 13,410, 13,710 \leq f \leq 14,010$	-3,5 (see note 6)
$12,660 \leq f \leq 13,110, 14,010 \leq f \leq 14,460$	-10 (see note 6)
$11,810 \leq f \leq 12,660, 14,460 \leq f \leq 15,310$	-16 (see note 6)
$13,460 \leq f \leq 13,553, 13,567 \leq f \leq 13,660$	27 (see note 6)
$13,360 \leq f \leq 13,460, 13,660 \leq f \leq 13,760$	Linear transition from 27 to -3,5 (see note 6)
$13,110 \leq f \leq 13,360, 13,760 \leq f \leq 14,010$	-3,5 (see note 6)
$12,660 \leq f \leq 13,110, 14,010 \leq f \leq 14,460$	-5 (see note 6)
$13,553 \leq f \leq 13,567$	42 (see note 3) or 60 (see notes 2 and 3)
27,095	42



Frequency range (MHz)	H-field strength limit (Hf) dB $\mu$ A/m at 10 m or specified in mW e.r.p.
26,995, 27,045, 27,095, 27,145, 27,195 (see note 8)	100 mW
<p>NOTE 1: For the frequency ranges 9 kHz to 135 kHz, the following additional restrictions apply to limits above 42 dB <math>\mu</math>A/m:</p> <ul style="list-style-type: none"> <li>-for loop coil antennas with an area <math>\geq 0,16 \text{ m}^2</math> this table and table B.1 with the antenna limitations apply;</li> <li>-for loop coil antennas with an area between <math>0,05 \text{ m}^2</math> and <math>0,16 \text{ m}^2</math> table B.1 applies with a correction factor. The limit is: table value + <math>10 \times \log(\text{area}/0,16 \text{ m}^2)</math>;</li> <li>-for loop coil antennas with an area <math>&lt; 0,05 \text{ m}^2</math> the limit is 10 dB below table B.1.</li> </ul> <p>NOTE 2: For RFID (incl. NFC) and EAS applications only.</p> <p>NOTE 3: Spectrum mask limit, see annex I.</p> <p>NOTE 4: For further information see annex G.</p> <p>NOTE 5: Limit is 42 dB <math>\mu</math>A/m for the following spot frequencies: 60 kHz <math>\pm 250</math> Hz, 66,6 kHz <math>\pm 750</math> Hz, 75 kHz <math>\pm 250</math> Hz, 77,5 kHz <math>\pm 250</math> Hz, and 129,1 kHz <math>\pm 500</math> Hz.</p> <p>NOTE 6: Only in conjunction with spectrum mask, see annex I.</p> <p>NOTE 7: The frequency range 6,765 MHz - 6,795 MHz is not a harmonised ISM frequency band according article 5.138 of the ITU Radio Regulations [i.13].</p> <p>NOTE 8: Center frequencies for channelized systems by using <math>\leq 10</math> kHz bandwidth.</p> <p>NOTE 9: The limit is valid in the range 984 kHz - 7 484 kHz for Transmitting only on receipt of a Balise/Eurobalise tele-powering signal from a train.</p>	

## 5.2 Test Procedure

The measurements of the transmitter radiated H-field shall be made on an open field test site as specified in clause C.1.3. Any measured values shall be at least 6 dB above the ambient noise level.

The H-field produced by the equipment shall be measured at standard distance of 10 m. Where this is not practical, e.g. due to physical size of the equipment including the antenna or with use of special field cancelling antenna, then other distances may be used. When another distance is used, the distance used and the field strength value measured shall be stated in the test report. In this case, the measured value at actual test distance shall be extrapolated to 10 m according to annex H and these calculations shall be stated in the test report.

The H-field is measured with a shielded loop antenna connected to a measurement receiver. The measuring bandwidth and detector type of the measurement receiver shall be in accordance with clause 5.12.

The equipment under test shall operate where possible, with modulation. Where this is not possible, it shall be stated in the test report.

For transmitters using a continuous wideband swept carrier, the measurement shall be made with the sweep off. When it is not possible to turn the sweep off the measurements shall be made with the sweep on and this shall be stated in the test report.

For measuring equipment calibrated in dB $\mu$ V/m, the reading should be reduced by 51,5 dB to be converted to



dB $\mu$ A/m.

### 5.3 Summary of Test Results/Plots

- Pre-scan EUT X,Y,Z axis,and find the worst case at X axis.

Frequency (MHz)	Level (dB $\mu$ A/m)@3m	C <sub>3</sub> Factor (dB)	Level (dB $\mu$ A/m)@10m	Limit (dB $\mu$ A/m)@10m	Result
13.56	4.29	23	-18.71	60	PASS

Note 1:H<sub>3m</sub>=H<sub>10m</sub>+C<sub>3</sub> refer to ETSI EN300 330 Annex H.2

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## 6. Radiated Spurious Emission Below 30MHz

### 6.1 Standard Applicable

According to EN 300330 section 4.3.8, the radiated field strength of the spurious domain emissions below 30 MHz shall not exceed the generated H-field dB $\mu$ A/m at 10 m given in table 5.

State	Frequency $9 \text{ kHz} \leq f < 10 \text{ MHz}$	Frequency $10 \text{ MHz} \leq f < 30 \text{ MHz}$
Operating	27 dB $\mu$ A/m at 9 kHz descending 3 dB/oct	-3,5 dB $\mu$ A/m
Standby	5,5 dB $\mu$ A/m at 9 kHz descending 3 dB/oct	-25 dB $\mu$ A/m

### 6.2 Test Procedure

The field strength shall be measured for frequencies below 30 MHz. The equipment under test shall be measured at a distance of 10 m on an outdoor test site. The test antenna shall be a calibrated shielded magnetic field antenna. The equipment under test and test antenna shall be arranged as stated in clause A.1.

For Product Class 3 the transmitter antenna connector of the equipment under test shall be connected to an artificial antenna (see clause 6.2) and the output connector terminated.

The equipment under test shall be switched on with normal modulation. The characteristics of the modulation signal used shall be stated on the test report. The measuring receiver shall be tuned over the frequency range 9 kHz to 30 MHz, except for the frequency band on which the transmitter is intended to operate.

At each frequency at which a relevant spurious signal is detected the equipment under test and the test antenna shall be rotated until maximum field strength is indicated on the measuring receiver. This level shall be noted.

If the transmitter can be operated in the standby mode, then the measurements shall be repeated in the standby mode.

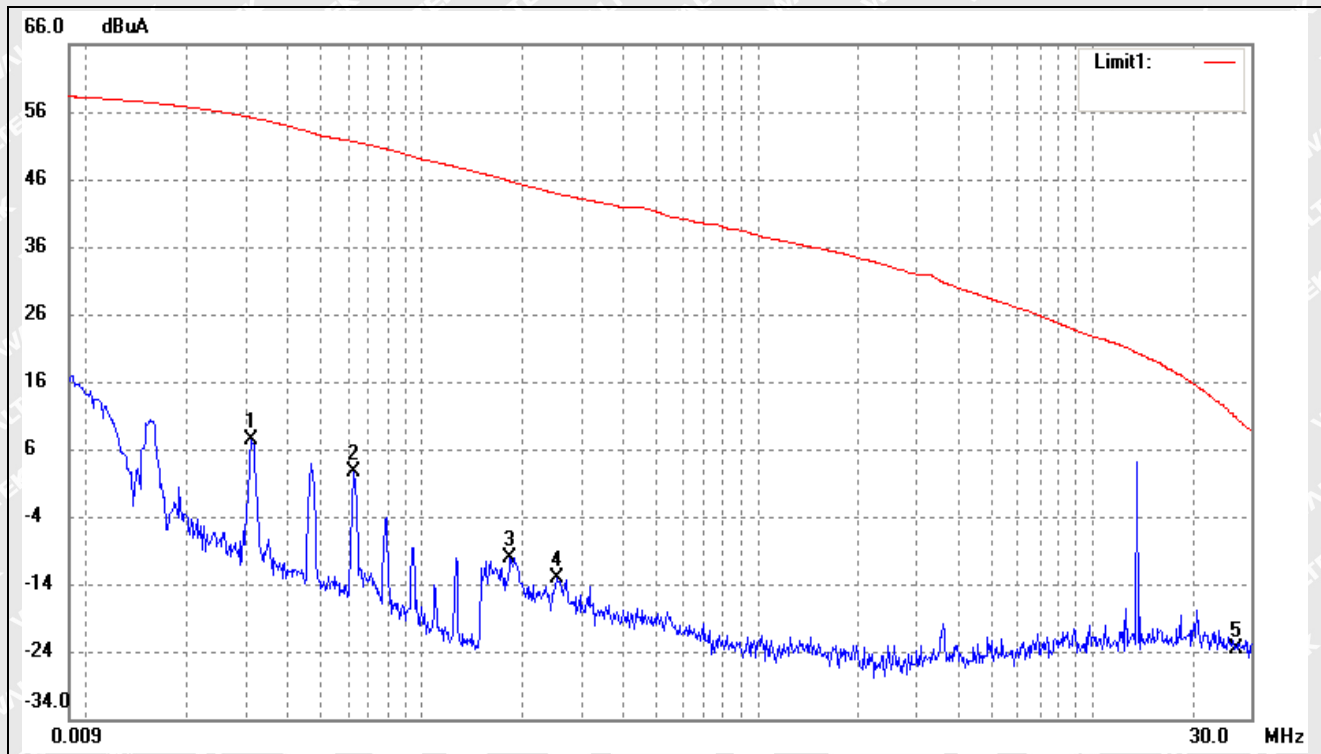
For measuring equipment calibrated in dB $\mu$ V/m, the reading should be reduced by 51,5 dB to be converted to dB $\mu$ A/m.



### 6.3 Summary of Test Results/Plots

- Pre-scan EUT X,Y,Z axis,and find the worst case at X axis.
- 9kHz-30MHz Emission @3m

Test Channel:	/	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuA/m)	Correct dB	Result (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Remark
1	0.0311	34.70	-27.28	7.42	55.17	-47.75	ERP
2	0.0629	29.38	-26.86	2.52	51.60	-49.08	ERP
3	0.1835	17.38	-27.43	-10.05	45.76	-55.81	ERP
4	0.2521	15.25	-28.30	-13.05	43.88	-56.93	ERP
5	27.1200	1.29	-24.93	-23.64	10.56	-34.20	ERP

Note 1:  $H_{3m}=H_{10m}+C_3$  refer to ETSI EN300 330 Annex H.2





## 7. Radiated Spurious Emission Above 30MHz

### 7.1 Standard Applicable

According to EN 300330 section 4.3.9, the power of any radiated emission shall not exceed the values given in table 6.

State	47 MHz to 74 MHz 87,5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 790 MHz	Other frequencies between 30 MHz to 1000 MHz
Operating	4 nW	250 nW
Standby	2 nW	2 nW

### 7.2 Test Procedure

EUT was placed on a nonmetal table which is 1.5 meter above the grounded reference plane and set to work in normal operation mode. Details refer to EN 300 330 subclause 6.2.9.

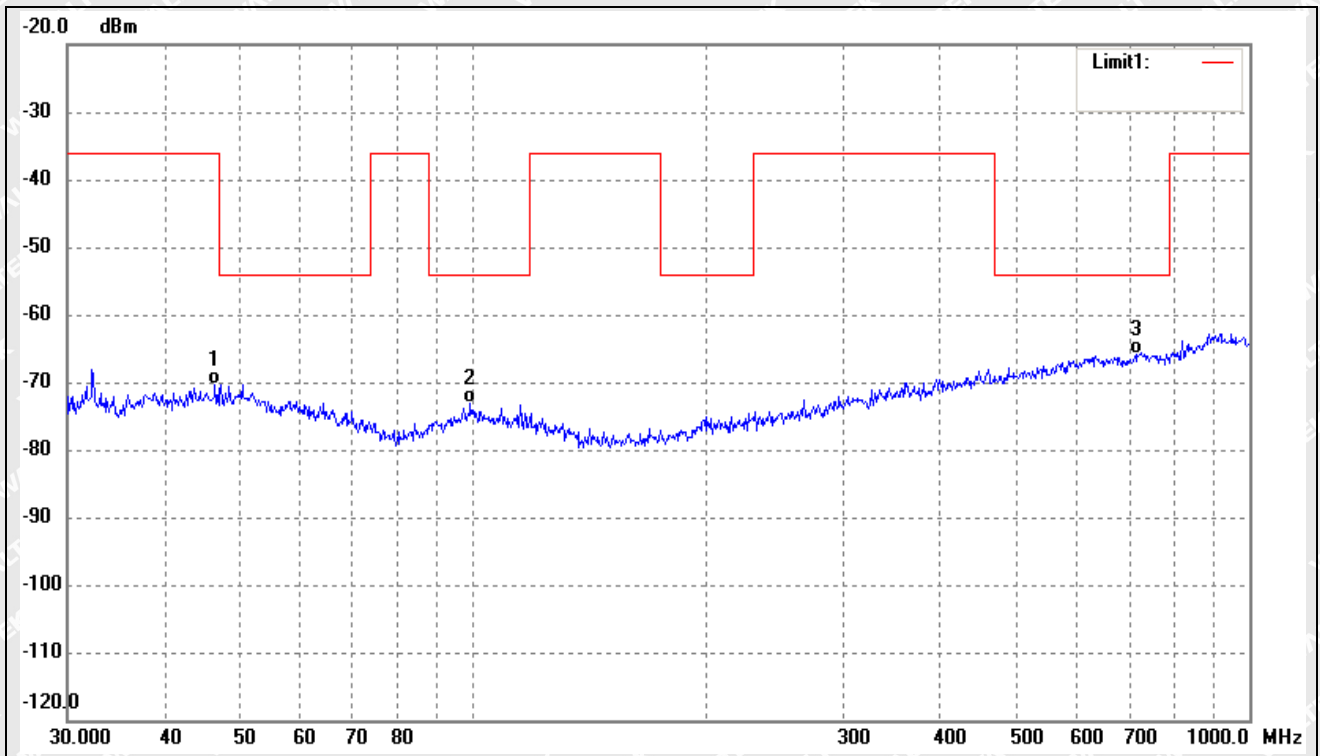
### 7.3 Summary of Test Results/Plots

- Pre-scan EUT X,Y,Z axis,and find the worst case at X axis.
- 9KHz-30MHz Emissions is too low. It is not record in the test report.



➤ 30MHz-1GHz Emission

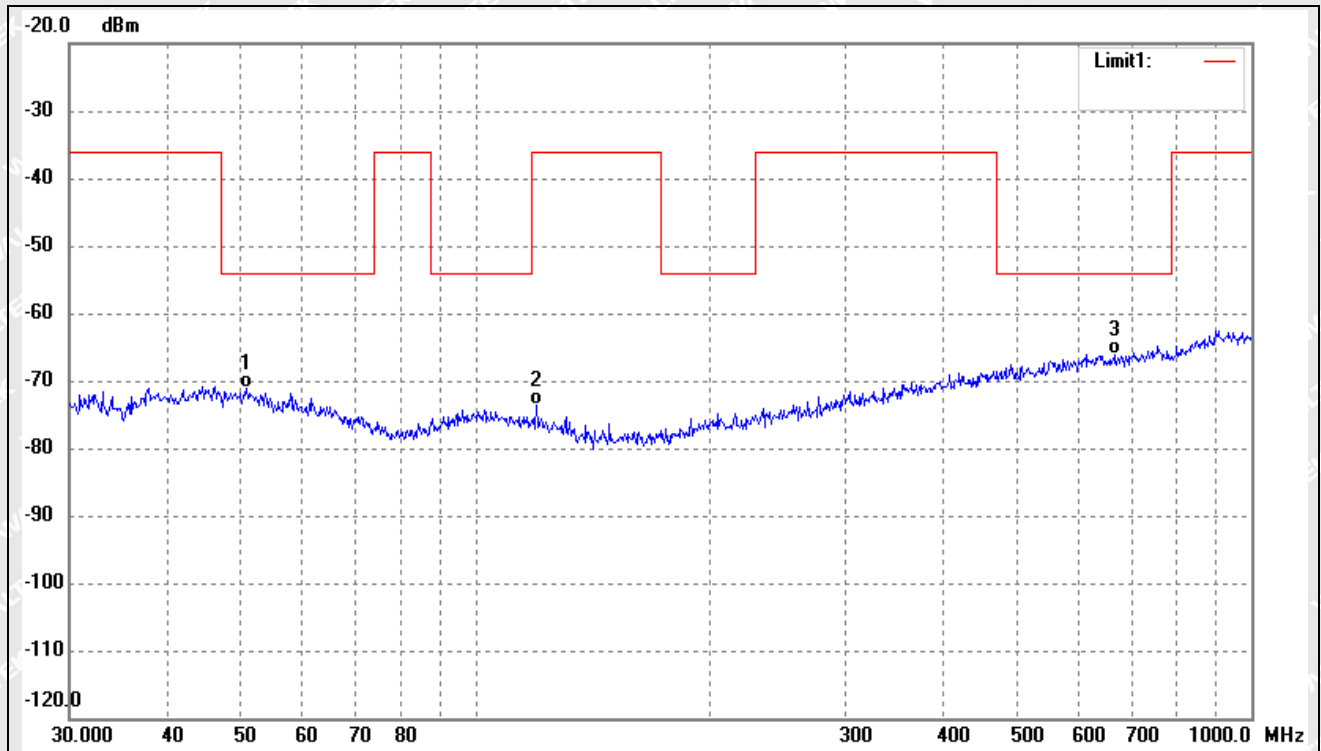
Test Channel:	13.56MHz	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	46.5030	-70.35	0.08	-70.27	-36.00	-34.27	ERP
2	99.1797	-71.55	-1.65	-73.20	-54.00	-19.20	ERP
3	716.6820	-76.41	10.52	-65.89	-54.00	-11.89	ERP



Test Channel:	13.56MHz	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.7637	-71.15	0.05	-71.10	-54.00	-17.10	ERP
2	119.8556	-71.24	-2.48	-73.72	-36.00	-37.72	ERP
3	665.8035	-75.90	9.75	-66.15	-54.00	-12.15	ERP

Note1: Standby mode dose not produce any emission, which no emission been detected.





## 8. Receiver spurious emissions

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### 8.1 Standard Applicable

These requirements does not apply to receivers used in combination with permanently co-located transmitters continuously transmitting. In these cases the receivers will be tested together with the transmitter in operating mode (see clause 4.3.3).

According to ETSI EN 300 330 Sub-clause 4.4.2.3

Frequency range	Limit
9 kHz $\leq f < 10$ MHz	5,5 dB $\mu$ A/m at 9 kHz descending 3 dB/oct
10 MHz $\leq f < 30$ MHz	-25 dB $\mu$ A/m
$\geq 30$ MHz	2nw

### 8.2 Test Procedure

EUT was placed on a nonmetal table which is 1.5 meter above the grounded reference plane and set to work in normal operation mode. Details refer to EN 300 330 subclause 6.3.1

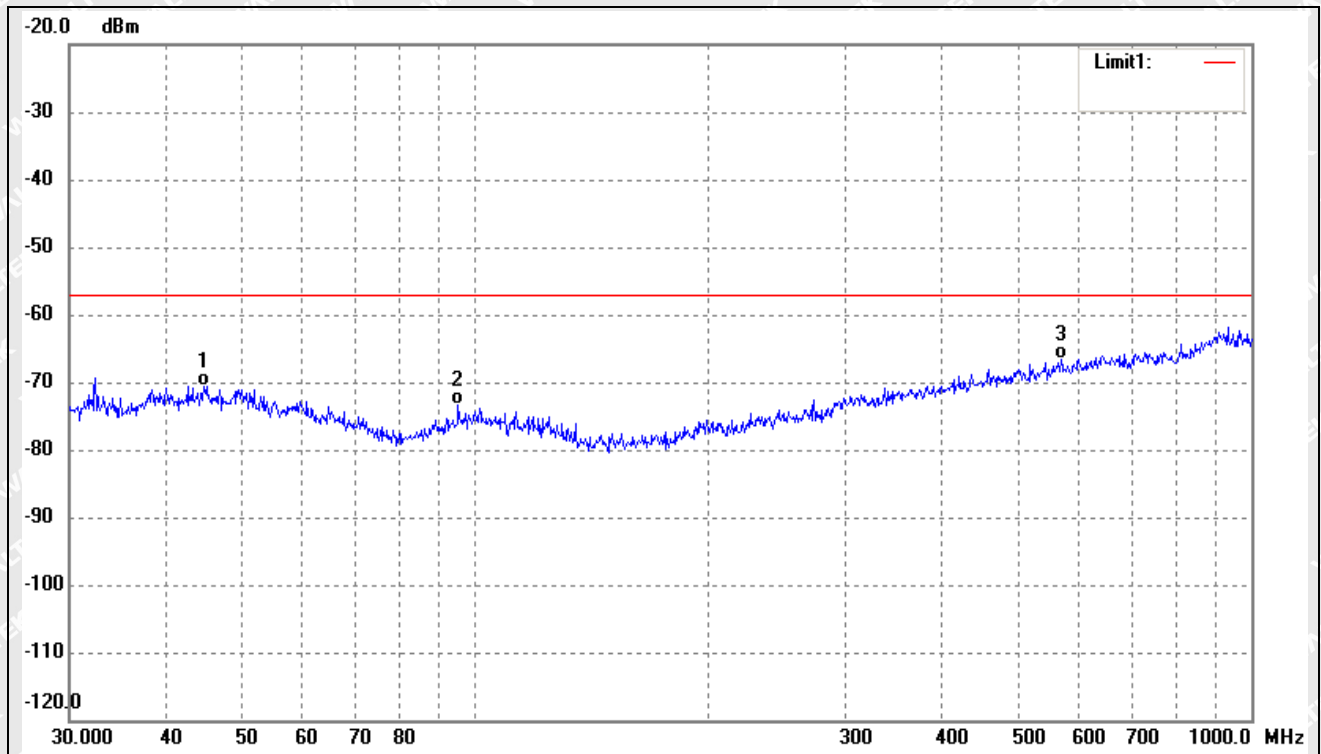
### 8.3 Summary of Test Results/Plots

- Pre-scan EUT X,Y,Z axis,and find the worst case at X axis.
- 9KHz-30MHz Emissions is too low. It is not record in the test report.



➤ 30MHz-1GHz Emission

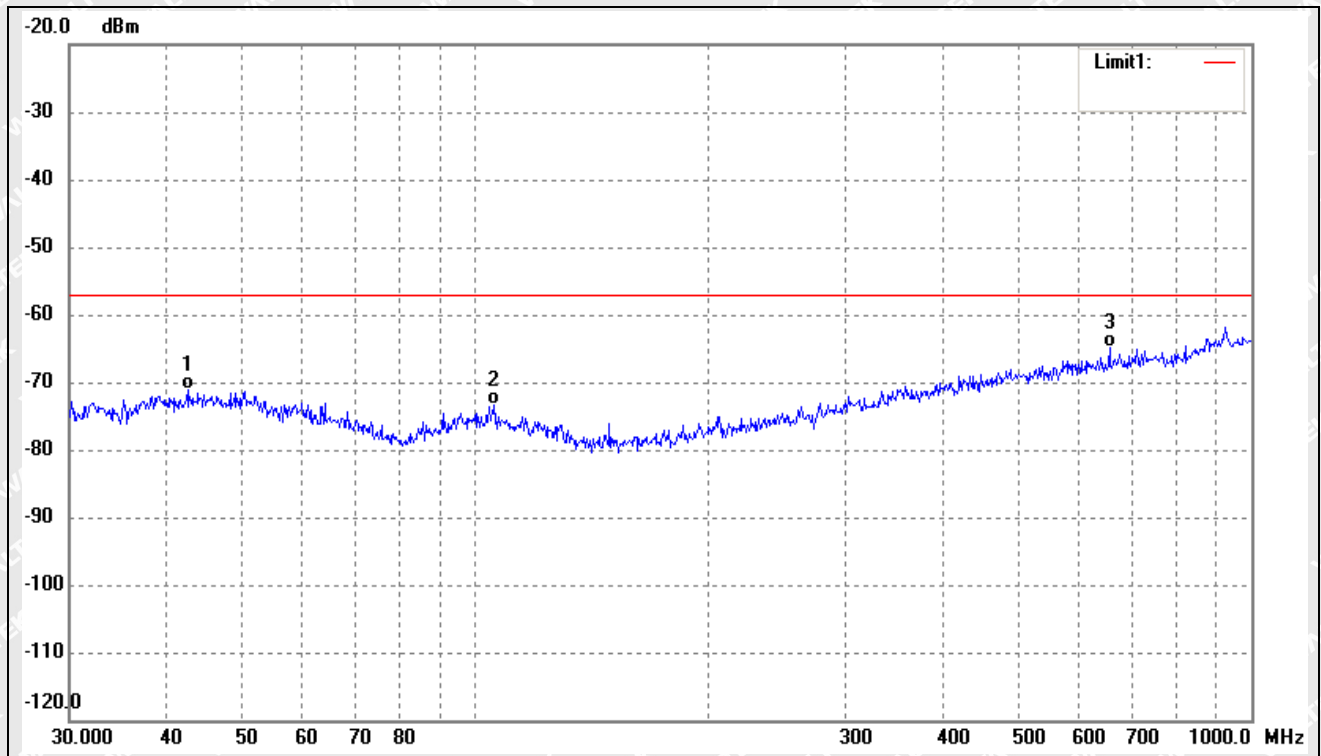
Test Channel:	13.56MHz	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.7434	-70.69	-0.01	-70.70	-57.00	-13.70	ERP
2	95.0930	-70.95	-2.33	-73.28	-57.00	-16.28	ERP
3	568.6127	-75.62	8.92	-66.70	-57.00	-9.70	ERP



Test Channel:	13.56MHz	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	42.6000	-70.92	-0.09	-71.01	-57.00	-14.01	ERP
2	105.6415	-71.76	-1.51	-73.27	-57.00	-16.27	ERP
3	656.5300	-74.32	9.56	-64.76	-57.00	-7.76	ERP





## EXHIBIT 1 - EUT PHOTOGRAPHS

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Please refer to “ANNEX”.

# WALTEK

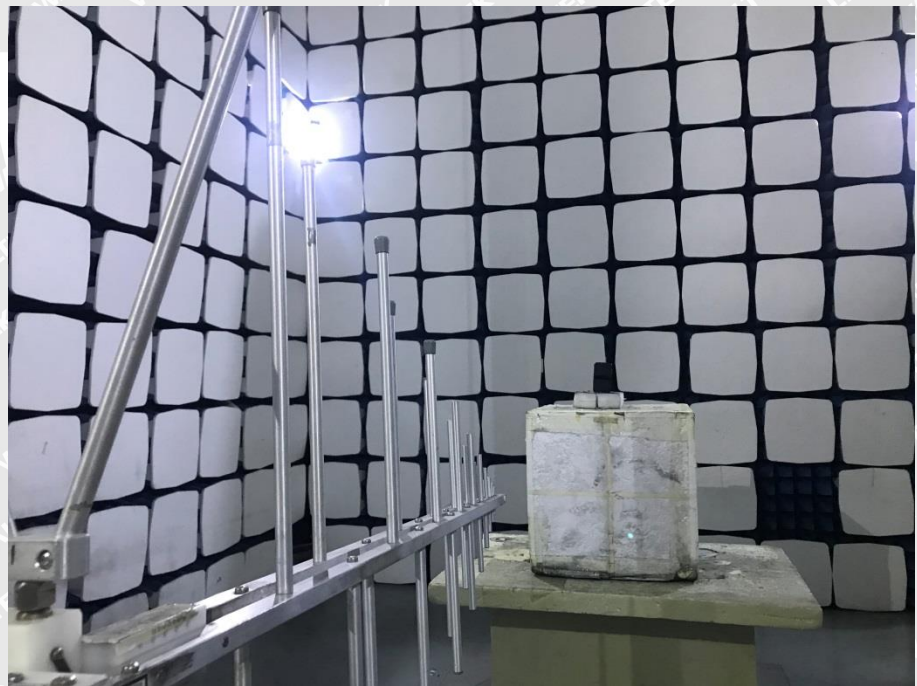


## EXHIBIT 2 - TEST SETUP PHOTOGRAPHS

**Radiated Spurious  
Emission Test Setup/  
Radiated H-Field (Below  
30MHz)**



**Radiated Spurious  
Emission Test Setup  
(Above 30MHz)**



\*\*\*\*\* END OF REPORT \*\*\*\*\*