

**Test specification:** 

Report Reference ID:	372836-1TRFWL
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Title 47 – Telecommunication

Chapter I – Federal Communications Commission

Subchapter A – General

Part 24 - Personal Communication Services

Subpart E - Broadband PCS

Applicant:	TEKO Telecom Srl. Via Meucci, 24/a I-40024 Castel S. Pietro Terme (BO) (Italy)
Apparatus:	Medium Power Remote Unit
Model:	TRM19HAWX2325AT
FCC ID:	XM2-MP19HAWX2325

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	Name and title	Date
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Reviewed by:	R. Giampaglia, Wireless/EMC Specialist	06/24/2019

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## Section 1: Report summary

#### 1.1 Test specification

**Specifications** 

Part 24 Subpart E, Broadband PCS

#### 1.2 Statement of compliance

#### Compliance

In the configuration tested the EUT was found compliant

Yes ⊠

No 🗌

This report contains an assessment of apparatus against specifications based upon tests carried out on samples submitted at Nemko Spa. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 24. Radiated tests were conducted in accordance with ANSI C63.26-2015.

#### 1.3 Exclusions

**Exclusions** 

None

### 1.4 Registration number

Test site FCC ID number

682159

## 1.5 Test report revision history

•	
Revision #	Details of changes made to test report
TRF	Original report issued
R1TRF	

### 1.6 Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

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# Section 2: Summary of test results

2.1 FCC Part 24, test results			
Part	Methods	Test description	Verdict
	§ 935210 D05v01r03 (3.2)	AGC threshold	Pass
	§ 935210 D05v01r03 (3.3)	Out of band rejection	Pass
§24.238(b)	§ 935210 D05v01r03 (3.4)	Occupied bandwidth	Pass
§24.232(a)	§ 935210 D05v01r03 (3.5)	Peak output power at RF antenna connector	Pass
§24.238(a)	§ 935210 D05v01r03 (3.6)	Spurious emissions at RF antenna connector	Pass
§24.238(a)	§ 935210 D05v01r03 (3.8)	Radiated spurious emissions	Pass
§24.235	§ 935210 D05v01r03 (3.7)	Frequency stability	N/A a)

#### Notes:

a) NOT APPLICABLE: Modulation/frequency conversion circuitry not in use. No frequency change in EUT (input and output have same frequency)

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Product: TRM19HAWX2325AT

# Section 3: Equipment under test (EUT) and application details

3.1 Applicant of	letails	
Applicant	Name:	Teko Telecom Srl
complete	Federal	
business name	Registration	0018963462
	Number (FRN):	
	Grantee code	XM2
Mailing address	Address:	Via Meucci, 24/a
	City:	Castel S. Pietro Terme
	Province/State:	Bologna
	Post code:	40024
	Country:	Italy
3.2 Modular ed	uinment	
		wel
a) Single modular approval	Single modular approval  Yes □ No ⊠	
b) Limited single	Limited single modula	ar approval
modular approval	Yes □	 No ⊠
• •		
3.3 Product de	tails	
FCC ID	Grantee code:	XM2
	Product code:	-MP19HAWX2325
Equipment class	B2I	
Description of	Booster	
product as it is	Model	TRM19HAWX2325AT
marketed	name/number:	TRIVIT9HAW X2325AT
	Serial number:	1013849001
3.4 Application	purpose	
Type of	Original certi	fication
application		entification of presently authorized equipment
	Original FCC	
	_	nissive change or modification of presently authorized
	equipment	g
	L L	



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## Section 3: Equipment under test

3.5 Composite/related equipment		
a) Composite	The EUT is a composite device subject to an additional equipment	
equipment	authorization	
	Yes □ No ⊠	
b) Related	The EUT is part of a system that operates with, or is marketed with,	
equipment	another device that requires an equipment authorization	
	Yes □ No ⊠	
c) Related FCC ID	If either of the above is "yes":	
	has been granted under the FCC ID(s) listed below:	
	is in the process of being filled under the FCC ID(s) listed below:	
	is pending with the FCC ID(s) listed below:	
	has a mix of pending and granted statues under the FCC ID(s)	
	listed below:	
	i FCC ID:	
	ii FCC ID:	
	1	

3.6 Sample inf	le information	
Receipt date:	05/27/2019	
Nemko sample ID number:		

3.7 EUT technical specifications		
Operating band:	Down Link 1930-1995 MHz; Up Link 1850-1915 MHz	
Operating frequency:	Wideband	
Modulation type:	GSM, EDGE, CDMA, WCDMA, LTE (QAM and QPSK)	
Occupied bandwidth:	GSM and EDGE: 200 kHz; CDMA: 1,25 MHz, WCDMA: 5 MHz LTE: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz	
Channel spacing:	standard	
Emission designator:	GSM and EDGE: GXW; CDMA, WCDMA: F9W, LTE: D7W	
RF Output	Down Link: 33dBm (2W) Up Link: N.A. (The EUT does not transmit over the air in the up-link direction)	
Gain	Down Link: 38dB Up Link: N.A. (The EUT does not transmit over the air in the up-link direction)	
Antenna type:	External Antenna is not provided, equipment that has an external 50 $\Omega$ RF connector	
Power source:	100-240 Vac	



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## Section 3: Equipment under test

3.8 Accessories and support equipment			
The following information id	lentifies accessories used to exercise the EUT during testing:		
Item # 1			
Type of equipment:	Master Unit - Subrack		
Brand name:	Teko Telecom srl		
Model name or number:	SUB-TRX-PSU		
Serial number:	101083001		
Nemko sample number:			
Connection port:			
Cable length and type:			
Item # 2			
Type of equipment:	Master Unit – Management Module		
Brand name:	Teko Telecom srl		
Model name or number:	TSPV-R		
Serial number:	110942253		
Nemko sample number:			
Connection port:	LAN port		
Cable length and type:			
Item # 3			
Type of equipment:	Master Unit – Optical Module		
Brand name:	Teko Telecom srl		
Model name or number:	TTRU4W-S-M		
Serial number:	110679007		
Nemko sample number:			
Connection port:	DL/UL RF connector (to connect to the base station)		
·	Optical port (to connect to remote unit)		
Cable length and type:			
Item # 4			
Type of equipment:	Master Unit – Power Supply		
Brand name:	Teko Telecom srl		
Model name or number:	TPSU/AC		
Serial number:	081063004		
Nemko sample number:			
Connection port:			
Cable length and type:			



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### 3.9 Operation of the EUT during testing

Details: In down-link direction, normal working at max gain with max RF power

output.

#### 3.10 EUT setup diagram

In this system, Remote Unit is the EUT. Master Unit includes only management module and optical module (to convert RF signal in optical signal in down link direction and viceversa optical signal in RF signal in up link direction). As described in "Operational description", master unit is connected directly to base station, so the system doesn't use another equipment (under another FCC ID) to exercise the EUT. Signal generator is linked directly to the RF connector of optical module in the Master Unit.

#### Test setup for output power, occupied bandwidth, spurious emissions:



#### **Procedure**

Connect the signal modulated generator to the input of the EUT, so that the EUT works at the max gain. Raise the input level to the EUT until reach the maximum output power. Connect the spectrum analyzer to the RF output connector of the EUT.



Product: TRM19HAWX2325AT

# Section 4: Engineering considerations

9	
4.1 Modification	ns incorporated in the EUT
Modifications	Modifications performed to the EUT during this assessment None ☑ Yes □, performed by Client □ or Nemko □ Details:
4.2 Deviations	from laboratory tests procedures
Deviations	Deviations from laboratory test procedures  None   Yes   - details are listed below:
4.3 Technical j	iudgment
Judgment	None



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## Section 5: Test conditions

## 5.1 Deviations from laboratory tests procedures

No deviations were made from laboratory test procedures.

5.2 Test conditions, power source and ambient temperatures					
Normal temperature, humidity and air pressure test conditions	Temperature: 15–30 °C Relative humidity: 20–75 % Air pressure: 86–106 kPa				
	When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.				
Power supply range:	The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.				



#### Section 5: Test conditions, continued

5.3 Measurement uncertainty						
EUT	Туре	Test	Range and Setup features	Measurement Uncertainty	Notes	
		Frequency error	0.001 MHz ÷ 40 GHz	0.08 ppm	(1)	
			10 kHz ÷ 30 MHz	1.0 dB	(1)	
		Carrier power	30 MHz ÷ 18 GHz	1.5 dB	(1)	
		RF Output Power	18 MHz ÷ 40 GHz	3.0 dB	(1)	
		Adjacent channel power	1 MHz ÷ 18 GHz	1.6 dB	(1)	
			10 kHz ÷ 26 GHz	3.0 dB	(1)	
		Conducted spurious emissions	26 GHz ÷ 40 GHz	4.5 dB	(1)	
		Intermodulation attenuation	1 MHz ÷ 18 GHz	2.2 dB	(1)	
		Attack time – frequency behaviour	1 MHz ÷ 18 GHz	2.0 ms	(1)	
		Attack time – power behaviour	1 MHz ÷ 18 GHz	2.5 ms	(1)	
		Release time – frequency behaviour	1 MHz ÷ 18 GHz	2.0 ms	(1)	
	Conducted	Release time – power behaviour	1 MHz ÷ 18 GHz	2.5 ms	(1)	
Transmitter	Conductor	Transient behaviour of the transmitter– Transient frequency behaviour	1 MHz ÷ 18 GHz	0.2 kHz	(1)	
		Transient behaviour of the transmitter – Power level slope	1 MHz ÷ 18 GHz	9%	(1)	
		Frequency deviation - Maximum permissible frequency deviation	0.001 MHz ÷ 18 GHz	1.3%	(1)	
		Frequency deviation - Response of the transmitter to modulation frequencies above 3 kHz	0.001 MHz ÷ 18 GHz	0.5 dB	(1)	
		Dwell time	-	3%	(1)	
		Hopping Frequency Separation	0.01 MHz ÷ 18 GHz	1%	(1)	
		Occupied Channel Bandwidth	0.01 MHz ÷ 18 GHz	2%	(1)	
		Modulation Bandwidth	0.01 MHz ÷ 18 GHz	2%	(1)	
		Radiated spurious emissions	10 kHz ÷ 26.5 GHz	6.0 dB	(1)	
	Radiated	riadiated sparious etilissions	26.5 GHz ÷ 40 GHz	8.0 dB	(1)	
	naulateu	Effective radiated power	10 kHz ÷ 26.5 GHz	6.0 dB	(1)	
		transmitter	26,5 GHz ÷ 40 GHz	8.0 dB	(1)	
		Dadioted anurious arriasis	10 kHz ÷ 26.5 GHz	6.0 dB	(1)	
	Radiated	Radiated spurious emissions	26.5 GHz ÷ 40 GHz	8.0 dB	(1)	
Receiver		Sensitivity measurement	1 MHz ÷ 18 GHz	6.0 dB	(1)	
	0	O-adveted and	10 kHz ÷ 26 GHz	3.0 dB	(1)	
	Conducted	Conducted spurious emissions	26 GHz ÷ 40 GHz	4.5 dB	(1)	

<sup>(1)</sup> The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2 which has been derived from the assumed normal probability distribution with infinite degrees of freedom and for a coverage probability of 95 %



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5.4 Test equ	ipment			
Equipment	Manufacturer	Model No.	Asset/Serial No.	Next cal.
Vector Signal Generator	Agilent	N5172B EXG	MY53051238	05/2021
Vector Signal Generator	Agilent	E4438C ESG	MY45094485	08/2019
Spectrum Analyzer	Agilent	N9030A PXA	MY53120882	12/2019
Trilog Broad Band Antenna 25-8000 MHz	Schwarzbeck	VULB 9162	VULB 9162-25	07/2021
Antenna 1-18 GHz	Schwarzbeck	STLP 9148	STPL 9148-123	07/2021
Double ridge horn antenna (4 ÷ 40 GHz)	RFSpin	DRH40	061106A40	02/2020
Broadband preamplifier (18 ÷ 40 GHz)	Miteq	JS44-18004000-35-8P- R	1.627	09/2019
Broadband preamplifier 1-18 GHz	Schwarzbeck	BBV 9718	9718-137	08/2019
EMI receiver 20 Hz ÷ 8 GHz	R&S	ESU8	100202	01/2020
EMI receiver 2 Hz ÷ 44 GHz	R&S	ESW44	101620	05/2019
Hydraulic revolving platform	Nemko	RTPL 01	4.233	NCR
Turning-table	R&S	HCT	835 803/03	NCR
Antenna mast	R&S	HCM	836 529/05	NCR
Controller	R&S	HCC	836 620/7	NCR
Semi-anechoic chamber	Nemko	10m semi-anechoic chamber	530	09/2021
Shielded room	Siemens	10m control room	1947	NCR
Semi-anechoic chamber	Nemko	10m semi-anechoic chamber	70	NCR
Shielded Room	Siemens	3m semi-anechoic chamber	3	NCR
Motor controller	Emco	1051-25	9012-1559	NCR
Motor controller	Emco	1061-1.521	9012-1508	NCR
Antenna Tower	Emco	2071-2	9601-1940	NCR
Controller pole/table	Emco	2090	9511-1099	NCR

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use (\*) Equipment supplied by manufacturer's



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## Appendix A: Test results

## Clause 935210 D05v01 (3.2) AGC threshold

Measure of EUT AGC Threshold

Test date: 05/27/2019 to 06/24/2019

Test results: Pass

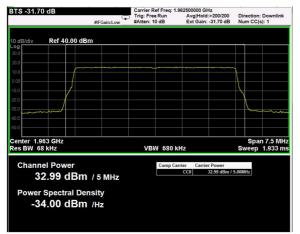
#### Special notes

- Narrowband amplifiers: MSK test signal used (GSM-TDMA signal)
- Broadband amplifiers: AWGN test signal used (5 MHz LTE channel)

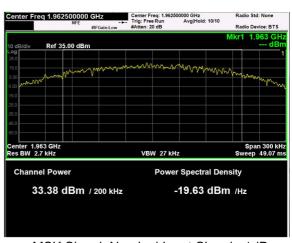
#### Test data



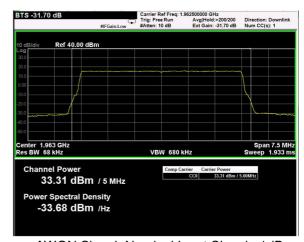
MSK Signal, Nominal Input Signal



AWGN Signal, Nominal Input Signal



MSK Signal, Nominal Input Signal +1dB



AWGN Signal, Nominal Input Signal +1dB



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## Clause 935210 D05v01 (3.3) Out of band rejection

Out of Band Rejection – Test for rejection of out of band signals.

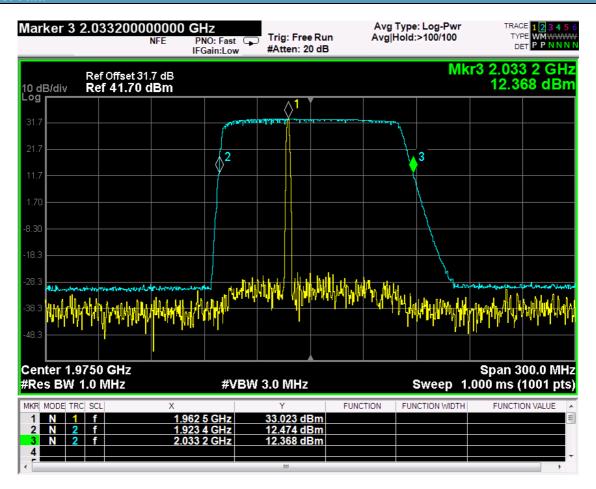
Test date: 05/27/2019 to 06/24/2019

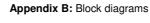
Test results: Pass

#### Special notes

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#### Test data





Specification: FCC 24

## Clause 24.238(b) Occupied bandwidth

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Test date: 05/27/2019 to 06/24/2019

Test results: Pass

#### Special notes

Narrowband amplifiers: MSK test signal used (GSM-TDMA signal)

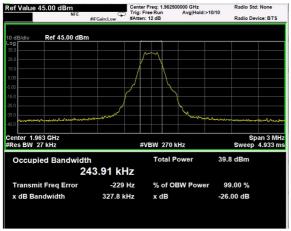
Broadband amplifiers: AWGN test signal used (5 MHz LTE channel)



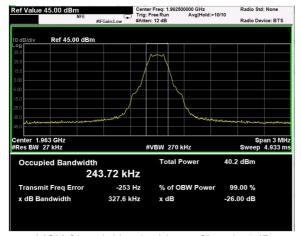
Specification: FCC 24

#### Clause 24.238(b) Occupied bandwidth, continued

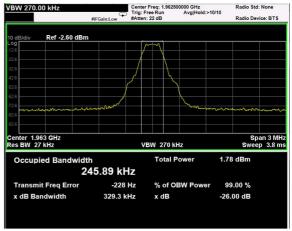
#### Test data



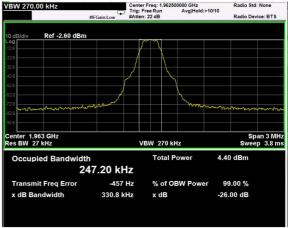
MSK Signal, Nominal Input Signal, Output



MSK Signal, Nominal Input Signal +3dB, Output

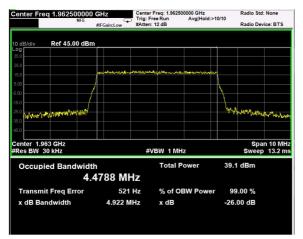


MSK Signal, Nominal Input Signal, Input

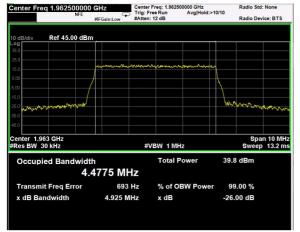


MSK Signal, Nominal Input Signal +3dB, Input

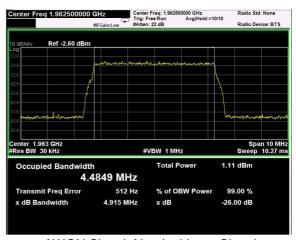
Product: TRM19HAWX2325AT



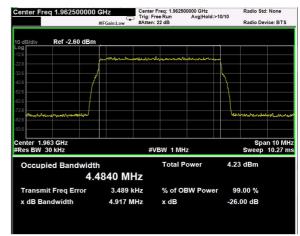
AWGN Signal, Nominal Input Signal, Output



AWGN Signal, Nominal Input Signal +3dB, Output



AWGN Signal, Nominal Input Signal, Input



AWGN Signal, Nominal Input Signal +3dB, Input



Appendix B: Block diagrams Product: TRM19HAWX2325AT

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## Clause 24.232(a) Peak output power at RF antenna connector

- (a) (1) Base stations with an emission bandwidth of 1 MHz or less are limited to 1640 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.
- (a) (2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.
- (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test date: 05/27/2019 to 06/24/2019

Test results: Pass

#### Special notes

Narrowband amplifiers: MSK test signal used (GSM-TDMA signal)

Broadband amplifiers: AWGN test signal used (5 MHz LTE channel)



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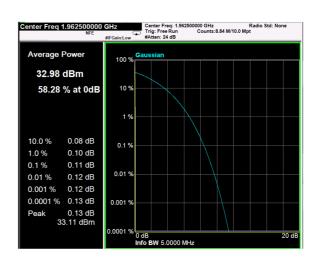
#### Clause 24.232(a) Peak output power at RF antenna connector

Test data

#### MSK signal, nominal input signal

Test data					
Direction	Modulation	Frequency (MHz)	RF output Power (dBm)	RF output channel Power (W)	PAR (dB)
Down-link	MSK (GSM, 200kHz)	1962.5	32.96	1,98	0,13





PAR measure is performed by the "CCDF" function installed on Spectrum analyzer that provides average power (the same measured with "Channel power" function), peak power and PAR.



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#### MSK signal, nominal input signal + 3dB

Test data				
Direction	Modulation	Frequency (MHz)	RF output Power (dBm)	RF output channel Power (W)
Down-link	MSK (GSM, 200kHz)	1962.5	33.26	2.12





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#### AWGN signal, nominal input signal

Test data						
Direction	Modulation	Frequency (MHz)	RF output Power (dBm)	RF output channel Power (W)	RF output Power (W/MHz)	PAR (dB)
Down-link	AWGN (LTE, 5MHz)	1962.5	32.97	1.98	0.40	11.15





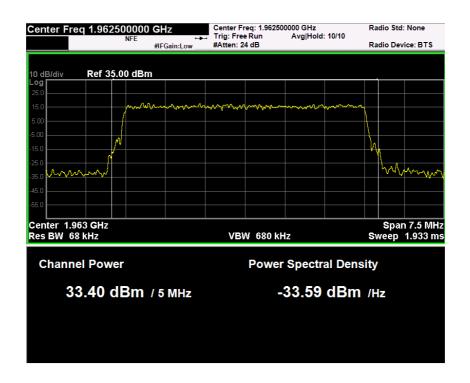
PAR measure is performed by the "CCDF" function installed on Spectrum analyzer that provides average power (the same measured with "Channel power" function), peak power and PAR.

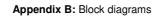


Specification: FCC 24

#### AWGN signal, nominal input signal + 3dB

Test data					
Direction	Modulation	Frequency (MHz)	RF output Power (dBm)	RF output channel Power (W)	RF output Power (W/MHz)
Down-link	AWGN (LTE, 5MHz)	1962.5	33.40	2.19	0.44







Product: TRM19HAWX2325AT

## Clause 24.238(a) Spurious emissions at RF antenna connector

a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 Log (P) dB.

Test date: 05/27/2019 to 06/24/2019

Test results: Pass

#### Special notes

Narrowband amplifiers: MSK test signal used (GSM-TDMA signal)

Broadband amplifiers: AWGN test signal used (5 MHz LTE channel)



## Clause 24.238(a) Spurious emissions at RF antenna connector, continued

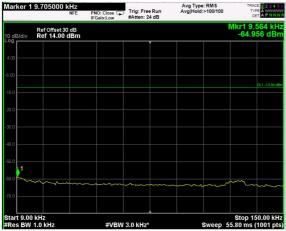
Test data			
See Plots below			
Spurious emissions me	asurement results:		
Frequency (MHz)	Spurious emission (dBm)	Limit (dBm)	Margin (dB)
Low channel			
First channel	Negligible	-13	
Mid channel			
1962,5 MHz	Negligible	-13	
High channel			
Last channel	Negligible	-13	

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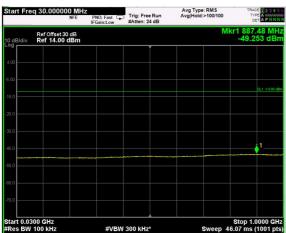
#### Test data: spurious emissions at antenna terminal

#### MSK signal

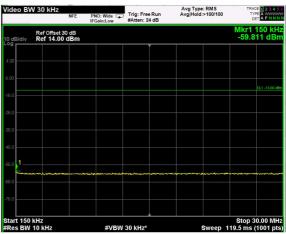
(Plots are referred to modulated carrier at the Middle Channel)



MSK SIGNAL, 9kHz-150kHz



MSK SIGNAL, 30MHz-1GHz



MSK SIGNAL, 150kHz-30MHz

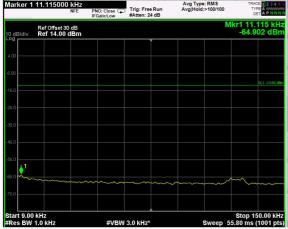


MSK SIGNAL, 1GHz-20GHz

Product: TRM19HAWX2325AT

#### **AWGN signal**

(Plots are referred to modulated carrier at the Middle Channel)



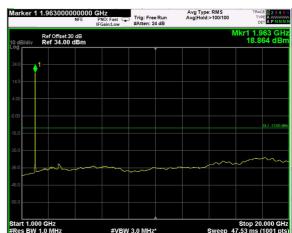
AWGN SIGNAL, 9kHz-150kHz



AWGN SIGNAL, 30MHz-1GHz



AWGN SIGNAL, 150kHz-30MHz

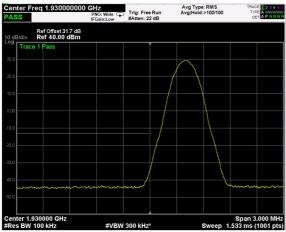


AWGN SIGNAL, 1GHz-20GHz

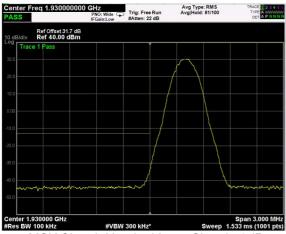
Specification: FCC 24

#### Test data, continued: band edges Inter modulation

#### MSK signal



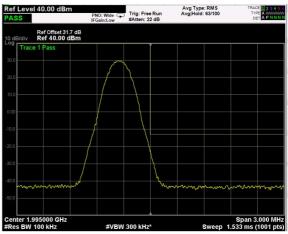
MSK Signal, Nominal Input Signal, Low Band Edge, 1 Carrier



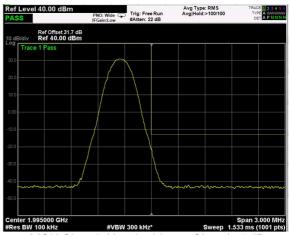
MSK Signal, Nominal Input Signal +3dB, Low Band Edge, 1 Carrier



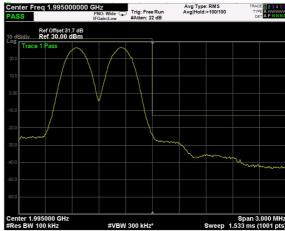
MSK Signal, Nominal Input Signal, Low Band Edge, 2 Carrier



MSK Signal, Nominal Input Signal, High Band Edge, 1 Carrier

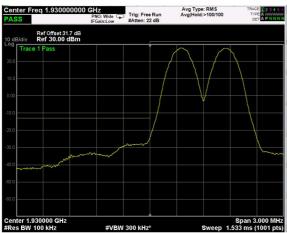


MSK Signal, Nominal Input Signal +3dB, High Band Edge, 1 Carrier



MSK Signal, Nominal Input Signal, High Band Edge, 2 Carrier





MSK Signal, Nominal Input Signal +3dB, Low Band Edge, 2 Carrier



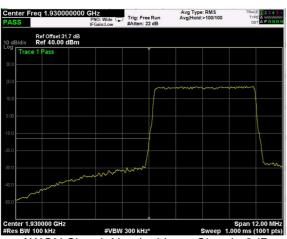
MSK Signal, Nominal Input Signal +3dB, High Band Edge, 2 Carrier

Product: TRM19HAWX2325AT

#### **AWGN signal**



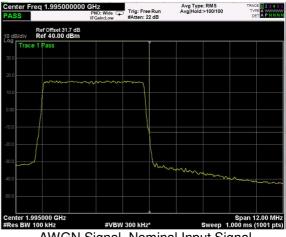
AWGN Signal, Nominal Input Signal, Low Band Edge, 1 Carrier



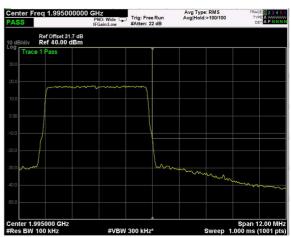
AWGN Signal, Nominal Input Signal +3dB, Low Band Edge, 1 Carrier



AWGN Signal, Nominal Input Signal, Low Band Edge, 2 Carrier



AWGN Signal, Nominal Input Signal, High Band Edge, 1 Carrier



AWGN Signal, Nominal Input Signal +3dB, High Band Edge, 1 Carrier

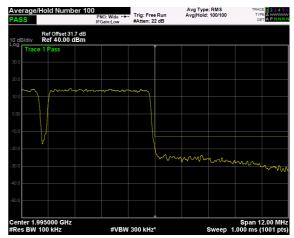


AWGN Signal, Nominal Input Signal, High Band Edge, 2 Carrier





AWGN Signal, Nominal Input Signal +3dB, Low Band Edge, 2 Carrier



AWGN Signal, Nominal Input Signal +3dB, High Band Edge, 2 Carrier



Appendix B: Block diagrams Product: TRM19HAWX2325AT

Specification: FCC 24

## Clause 24.238(a) Radiated Spurious emissions

Test date: 05/27/2019 to 06/24/2019

a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43  $\pm$  10 Log (P) dB.

Test results: Pass		
Special notes		
_		



Specification: FCC 24

#### Clause 24.238(a) Radiated spurious emissions, continued

#### Test data

The D.U.T. was positioned according to the radiated emissions set-up

The D.U.T. antenna connector was terminated by a 50  $\Omega$  shielded dummy load.

The spectrum was searched from 30 MHz to 1 GHz (RBW 100 kHz) & 1 GHz (RBW 1 MHz) to the tenth harmonic of the carrier.

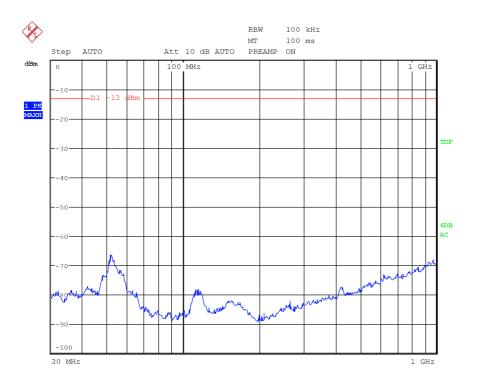
There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.

Spurious emissions measurement results:

Opunous emission	is illeasurement rest			
Frequency	Polarization.	Field strength	Limit	Margin
(MHz)	V/H	(dBm)	(dBm)	(dB)
Low channel			1	1
First Channel	V/H	Negligible	-13	
Mid channel				
1962,5	V/H	Negligible	-13	
High channel	T	<u> </u>	Т	Т
Last Channal	V/II	Nagligible	10	
Last Channel	V/H	Negligible	-13	

Note: Field strength includes correction factor of antenna, cable loss, amplifier, and attenuators where applicable.

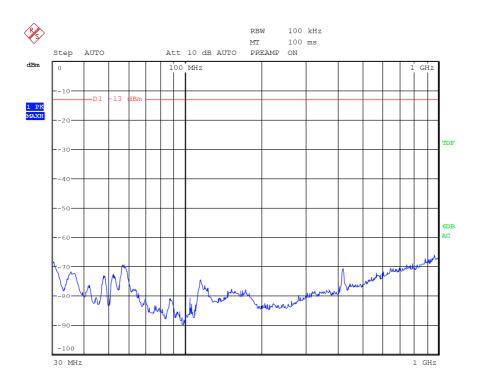




Date: 19.JUN.2019 08:29:25

30MHz-1GHz - H Pol

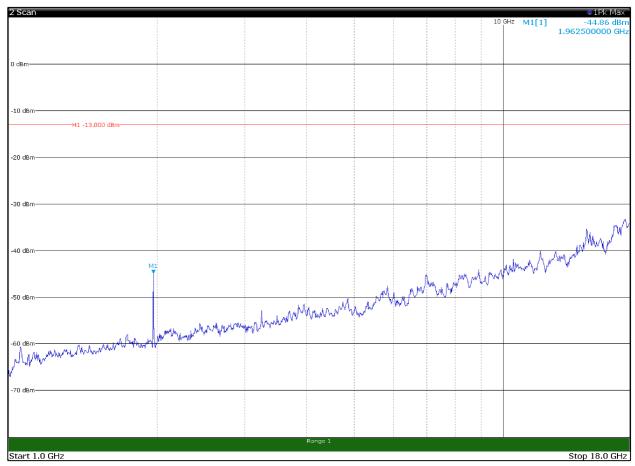




Date: 19.JUN.2019 08:30:29

30MHz-1GHz - V Pol

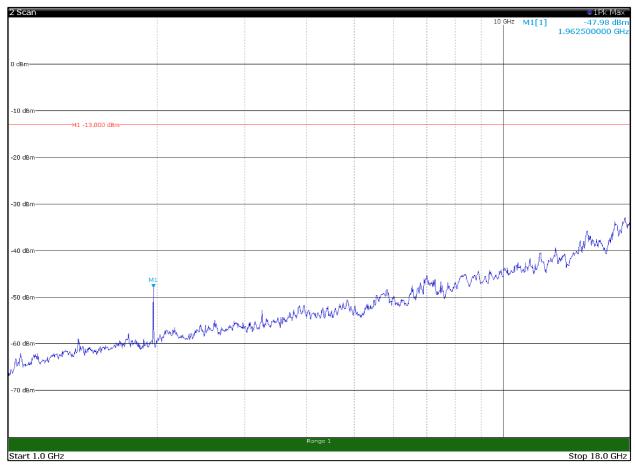




13:04:02 17:06:2019 Page 1/1

1GHz-18GHz - H Pol

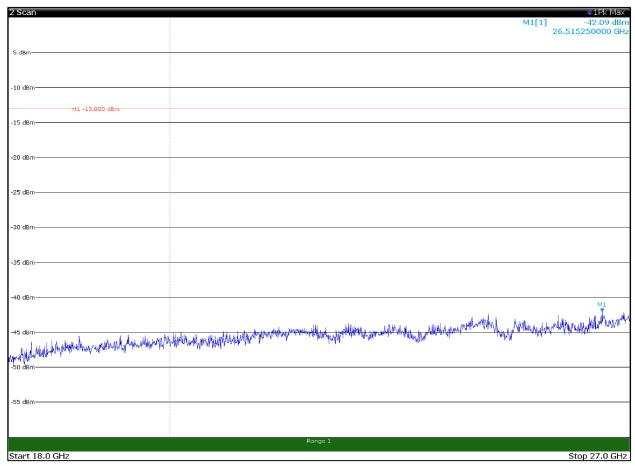




13:01:29 17:06:2019 Page 1/1

1GHz-18GHz - V Pol

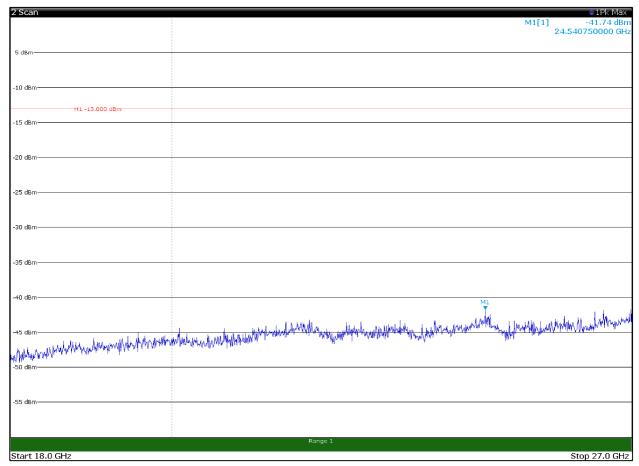




11:36:32 18:06:2019 Page 1/1

18GHz-27GHz - H Pol





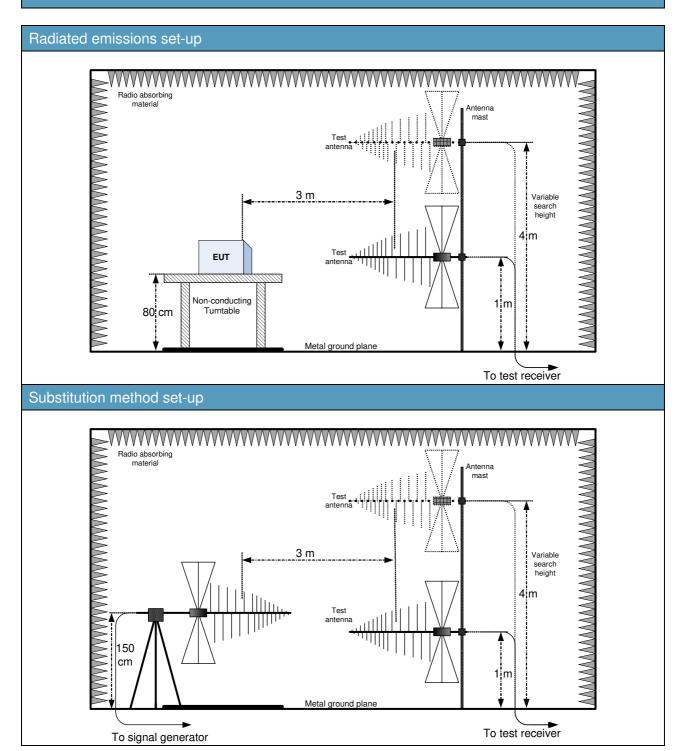
11:35:54 18:06:2019 Page 1/1

18GHz-27GHz - V Pol



Product: TRM19HAWX2325AT

## Appendix B: Block diagrams of test set-ups

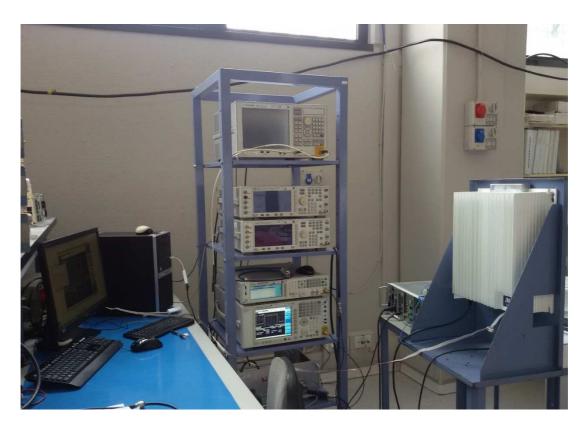




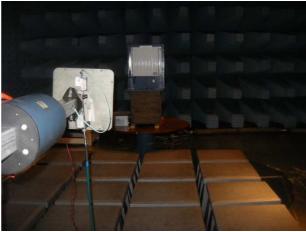


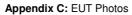
# Appendix C: EUT Photos

#### Photo Set up









Nemko









## Photo EUT











**END OF REPORT**