Test Report No. 9612302364

For Tytocare Ltd

Equipment Under Test:

TytoPro

Model: 900-00002

From The Standards Institution
Of Israel
Industry Division
Electronics & Telematics Laboratory
EMC Branch



Certificate Number: AT-1359



Title: TytoPro Model: 900-00002

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FCC ID: 2AHKN-K160401

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1. Applicant information

Applicant:

Tytocare Ltd.

Address:

HaOmanut 12, Netanya P.O.B. 4205445, Israel

Sample for test selected by:

The customer

The date of tests:

1, 2, 14 February 2016

Equipment under test information

Description of Equipment Under

Test (EUT):

TytoPro

Model:

900-00002

Main board version:

830-00004

Software version:

1.0.02502

Manufactured by:

Tytocare Ltd.

2. Test performance

Location:

SII EMC Section

Purpose of test:

Apparatus compliance verification in accordance with emission

requirements

Test specifications:

47CFR part 15.247, 15.205, 15.207, 15.209 and part 1 §1.1310

This Test Report contains 31 pages and may be used only in full.

This Test Report applies only to the specimen tested and may not be applied to other specimens of the same product.



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Normative References.

FCC 47 CFR Part 15, Subpart C, 2015	Radio Frequency Devices Subpart C – Intentional Radiators
ANSI C63.4: 2014	American National Standard for Method of Measurements of Radio-Noise Emissions from Low- Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10: 2013	American National Standard for Testing of Unlicensed Wireless Devices.
FCC OET KDB 558074, January 2016	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247



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3. Summary of test:

The EUT was found to be in compliance with requirements of: 47CFR Part 15, §§ 15.247, 15.205, 15.207 and 15.209.

Transmitter characteristics	Subclasses
Minimum 6 dB bandwidth	15.247(a)(2)
Maximum output power	15.247(b)(3)
Peak power spectral density	15.247(e)
Out of band spurious emissions radiated	15.205, 15.247(d)
Unwanted radiated emissions below 1 GHz	15.209
Conducted emission test on AC main line.	15.207

Electronics and Telematics Laboratory

March 2016

Name: Eng. Yuri Rozenberg
Position: Head of EMC Branch.

Name: Michael Feldman. Position: Test engineer.

Measurement uncertainty.

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error.

The laboratory calibrates its standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements.

In the following table the uncertainty calculation is given.

Test description	Calculated uncertainty U LAB						
Conducted measurements							
Frequency error	37.6 Hz						
Spurious emission	± 2.98 dB						
Radiated emissions							
Electric field strength in a SAR at 3 m distance 30 MHz – 1.0 GHz	±4.32 dB						
Electric field strength in a FAR at 3 m distance 1.0 GHz – 18 GHz	± 4.47						
Substitution measurements							
In a FAR at 3 m distance 1.0 GHz – 18 GHz	± 3.41 dB						

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4. Equipment under test description.

*The applicant provided description.

4.1 General description

The TytoPro, hereinafter EUT, is an electronic medical device that enables wireless transmission of heart/lugs sound, video streaming, pictures capturing or body temperature directly to physician at one location on an IP network while the patient location is on different IP network. It designed for use either in a home environment or at a clinician. The transmitter of the TytoPro is built on Texas Instruments Wi-Fi chip and Wi-Fi 2.4 GHz flexible polyimide antenna.

EUT technical characteristics

Transr	Note							
Assigned frequency band		2400 MHz – 2483.5 MHz	-					
Operating frequency range		2412 MHz – 2462 MHz	-					
RF channel spacing:		5 MHz	-					
Antenna information								
Type	Manufacture	er Model	Antenna gain, dBi					
Internal WLAN 2.4 GHz	Ethertronics L	td. 90000551	3.85					

Carrier Frequencies and Channels.

Frequency Band	Channel	Frequency, MHz	Channel	Frequency, MHz
	1	2412	7	2442
	2	2417	8	2447
2400 – 2483.5	3	2422	9	2452
2400 – 2483.3	4	2427	10	2457
	5	2432	11	2462
	6	2437		



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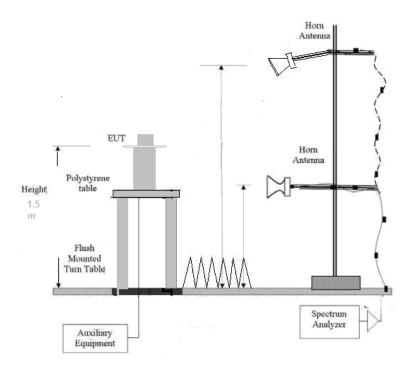


Fig.1. RE test setup above 1 GHz.



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5. Test results

5.1 Transmitter characteristics

5.1.1 Transmitter 6 dB occupied bandwidth.

Method of measurement

558074 D01 DTS Meas Guidance. Section 8.1

Operating Frequency Range

2412-2462 MHz

Detector used

Peak

Resolution bandwidth

100 kHz

Video bandwidth Trace mode > 3 x RBW. Max Hold.

Sweep time:

Auto couple.

Ambient Temperature 24⁰ C

Relative Humidity

55% Air Pressure

1011 hPa

The minimum 6 dB occupied bandwidth shall be at least 500 kHz.

Carrier frequency, MHz	Measured 6 dB occupied bandwidth, kHz	Limit, kHz	Reference to plot#
2412	16.48	500	1
2437	15.61	500	2
2462	15.70	500	3

TEST EQUIPMENT USED:

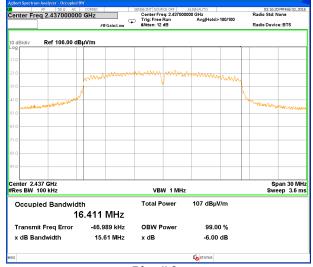
1	2	1.4		1
1	3	14		ĺ
				i



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Plot #2





Plot #3



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5.1.2 Maximum peak conducted output power test.

Method of measurement

558074 D01 DTS Meas Guidance. Section 3.

Operating Frequency Range

2412-2462 MHz

Detector used

Peak

Resolution bandwidth

1 MHz

Video bandwidth Trace mode 3x RBW. Max Hold.

Ambient Temperature 24⁰ C

Relative Humidity

55%

Air Pressure

1011 hPa

For Digital Transmit System the peak conducted output power in the 2400 – 2483.5 MHz band shall not exceed: 1W (30 dBm) or 36 dBm EIRP with antennas gains not exceed 6 dBi.

Carrier frequency, MHz	Field strength, dBµV/m	*Conducted output power, dBm	Conducted output power limit, dBm	Margin, dB	**EIR power, dBm	EIRP limit, dBm	Margin, dB	Reference to plot #
2412	100.345	13.4	30	16.6	17.3	36	18.7	4
2437	100.197	13.1	30	16.9	16.9	36	19.1	5
2462	98.225	11.1	30	18.9	15.0	36	21.0	6

^{*}The peak conducted output power = peak EIR power – Antenna gain.

Measured peak field straight level was converted to peak EIRP level and compute by integrating across the DTS bandwidth. The measurement of EIRP provided after verification according to ANSI/TIA-603-D-2010 substitution test method.

EUT was replaced by generator and substitution antenna. Result calculated from generator output level, substitution antenna gain and loss of connected cable was compared with the limit.

Transmitter was operated at continuous transmit mode at bottom, middle and top of the 2400 - 2483.5 MHz frequency band.

TEST EQUIPMENT USED:

		I		I		
1	2.	3	5	8	9	14
1	_		5	· ·		1.

^{**}EIR power = E Field strength $(dB\mu V/m@3m) - 95.2 + (10 Log DTS bandwidth)$.



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Plot # 4. Carrier frequency – 2412 MHz.

Plot # 5. Carrier frequency – 2437 MHz.



Plot # 6. Carrier frequency – 2462 MHz.



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5.1.3 Power spectral density test

Method of measurement

558074 D01 DTS Meas Guidance. Section 10.1.

Operating Frequency Range

2412-2462 MHz

Detector used

Peak

Resolution bandwidth

100 kHz

Video bandwidth Trace mode 3x RBW. Max Hold.

Ambient Temperature 24⁰ C

Relative Humidity

55% Air Pressure

1011 hPa

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be grater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

	Carrier frequency, MHz	Field strength, dBµV/m	*EIR PSD dBm	**Conducted PSD, dBm	Conducted PSD limit, dBm	Margin, dB	Reference to plot #
I	2412	91.052	-4.2	-8.0	8.0	16.0	7
ſ	2437	91.867	-3.4	-7.2	8.0	15.2	8
I	2462	91.241	-4.0	-7.8	8.0	15.8	9

^{*}EIR PSD = E Field Strength (dB\u03m) - 95.2.

TEST SUMMARY

EUT peak power spectral density result is below PSD limit per 47 CFR 15.247 (e). The EUT was found complies with standard requirement.

TEST EQUIPMENT USED:

ı				I		
	1	3	14			
	1	3	17			

^{**}Conducted Power Spectral Density = EIR PSD – Antenna gain.

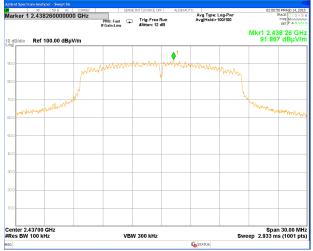


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Plot # 7. Carrier frequency – 2412 MHz.

Plot # 8. Carrier frequency – 2437 MHz.



Plot # 9. Carrier frequency – 2462 MHz.



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5.1.4 Radiated emissions according to §§ 15.247(d), 15.205(a)

Method of measurement

558074 D01 DTS Meas Guidance. Sec. 12.1.

Operating Frequency Range

2412-2462 MHz

Detector used

Trace 1 - Peak; Trace 2 - RMS

Resolution bandwidth

1 MHz/100 kHz

Video bandwidth

3x RBW.

Trace mode

Max Hold.

Ambient Temperature 24⁰ C Relative Humidity

55% Ai

Air Pressure 1011 hPa

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) must also comply with the radiated emission limits specified in Section 15.209(a).

Carrier frequency 2412 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit, dBμV/m	Avg limit, dBμV/m	Margin, dB	Note	Note	Reference to plot#
2389.2	62.4	74	-	11.6	*RB	Detector peak	11
2390.0	43.9	-	54	10.1	RB	Detector average	11
2400	57.2	64.6	-	7.4	Band edge	Detector peak.	12
14487	60.3	74.0	-	13.7	RB	Detector peak	14
14487	48.9	-	54	5.1	RB	Detector average	14

^{*}RB – restricted band



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Carrier frequency 2437 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit,	Avg limit,	Margin, dB	Note	Note	Reference to plot#
2348.3	53.8	74	- ubμν/m	>20	RB	Detector peak	16
2373.3	41.9	_	54	12.1	RB	Detector average	16
2373.3	71.7		34	12.1	Band	Detector average	10
2400	54.2	65.2	-	11.0	edge	Detector peak.	17
14487	59.6	74	-	14.4	RB	Detector peak	19
14487	48.9	-	54	5.1	RB	Detector average	19

Carrier frequency 2462 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit,	Avg limit,	Margin, dB	Note	Note	Reference to plot#
2366.4	53.2	74	- αDμ 1/111 -	>20	RB	Detector peak	21
2349.7	41.9	-	54	12.1	RB	Detector average.	21
2483.5	66.3	74	-	7.7	RB	Detector peak	24
2483.7	44.2	-	54	9.8	RB	Detector average	24
14478	59.6	74	-	14.4	RB	Detector peak	25
14487	49.0	-	54	5.0	RB	Detector average	25

TEST SUMMARY

All emissions outside of the 2400 – 2483.5 MHz band were found below 15.247(d) limits.

TEST EQUIPMENT USED:

	2	4	1.0	1.4	1.7	
1	3	4	10	14	15	



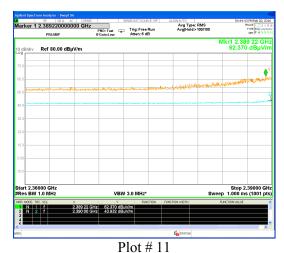
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Carrier frequency – 2412 MHz

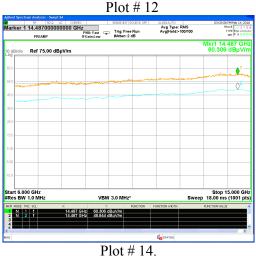


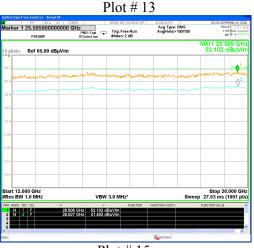


Plot # 10

| Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot # 10 | Plot







4. Plot # 15.



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> RF 50 R AC CORREC ker 1 2.4975660000000 GHz

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Carrier frequency - 2437 MHz.

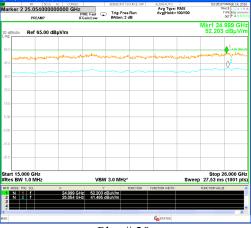


Plot # 16

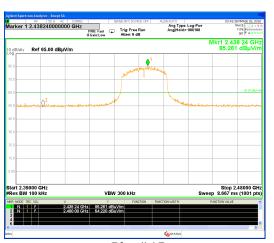
NO: Fast Trig: Free Run Gain: Inw Atten: 6 dB Avg Type: RMS Avg|Hold>100/100



Plot # 18



Plot # 20.



Plot # 17



Plot # 19



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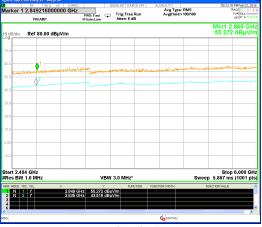
FCC ID: 2AHKN-K160401

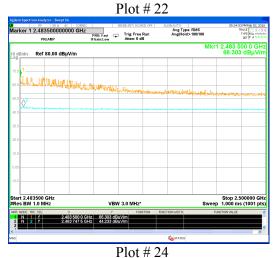
Carrier frequency 2462 MHz

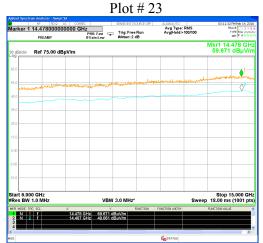


splay Line 68.10 dBµV/m Avg Type: Log-Pwr Avg|Hold:>100/100 PNO: Fast Trig: Free Rus Stop 2.50000 GH Sweep 10.53 ms (1001 pts

NO: Fast Trig: Free Run









Plot # 25 Plot # 26.



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5.2 Radiated emissions test according to § 15.209

Method of measurement

ANSI C63.10 §6.5

Detectors used

CISPR Quasi-Peak

Resolution bandwidth

9 kHz/120 kHz >3 x RBW.

Video bandwidth Trace mode

Free run

Ambient Temperature 24⁰ C

Relative Humidity

55% Air Pressure

1009 hPa

TEST DESCRIPTION:

The measurements were performed at 3 m test distance in Anechoic chamber. The EUT was arranged on a polystyrene table 0.8 m height placed on the turn - table. The Active Loop antenna in 9 kHz to 30 MHz frequency band and Biconilog antenna in 30 MHz – 1.0 GHz frequency band were used. The emission level was maximized by initially rotating turntable through 360°, varying the antenna height between 1 m and 4 m, rerouting EUT cables and changing antenna polarization from vertical to horizontal.

REQUIREMENTS:

EUT radiated emission shall not exceed value required in section 15.209

TEST RESULT:

Test results are presented in a table below and in plots ## 27 - 29

TEST EQUIPMENT USED:

1	6	14	16		
_	_				



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Radiated emission test results.

Frequency	Antenna Polariz.	Antenna Height	Turn- table	Emission Level	Limit @ 3m	Margin	
(MHz)	V/H	m	Angle (°)	Note 1 dB _μ V/m	dB _μ V/m	Note 2 dB	Results
82.7	V	1.0	139	31.2	40.0	8.8	Pass
106.3	V	1.0	118	31.5	43.5	12.0	Pass
130.0	V	1.0	234	28.0	43.5	15.5	Pass
200.8	Н	1.7	51	35.2	43.5	8.3	Pass
304.0	Н	1.2	54	30.6	46.0	15.4	Pass
339.5	Н	1.2	80	32.1	46.0	13.9	Pass

Note 1: Emission level = E Reading $(dB\mu V)$ + Cable loss (dB) + Antenna Factor (dB/m).

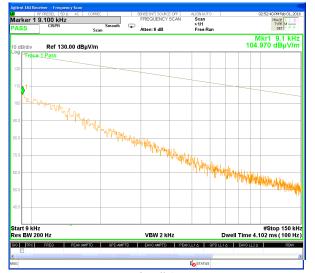
For Cable Loss and Antenna Factor refer to Appendix 2.

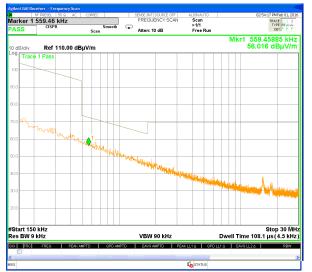
Note 2: Margin (dB) = Limit (dB μ V/m) – Emission level (dB μ V/m)

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Plot # 27 Plot # 28

Investigation result in 0.009 – 30 MHz frequency range.



Plot # 29. Investigation result in 30 - 1000 MHz frequency range.



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5.3 Conducted emissions test according to § 15.207.

Method of measurement

ANSI C63.10 §6.2

Ambient Temperature 23^o C

Relative Humidity

54% Air Pressure

re 1008 hPa

Frequency,	Conducted limit, dBµV				
MHz	QP	AVRG			
0.15 - 0.5	66 - 56*	56 - 46*			
0.5 - 5	56	46			
5 - 30	60	50			

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

EUT was placed on a wooden table in a shielded chamber at a height of 80 cm from the floor and 40 cm from the vertical reference plane. The measurements were performed at mains terminals by means of LISN, connected to spectrum analyzer. The measurements were made with quasi-peak and average (CISPR) detectors. The position of the EUT cables was varied to determine maximum emission level.

TEST RESULTS:

Charging mode test results present in plots # 30 for line Phase and in plot # 31 for line Neutral.

TEST EQUIPMENT USED:

11 12 13	
----------	--



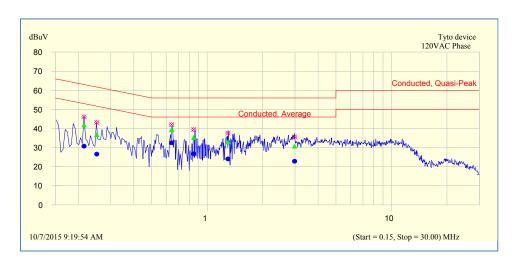


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Plot # 30. AC line conducted emissions test. Line Phase.

Frequency MHz	Peak dBµV	QP dBμV	Limit QP dB	Margin dB	Avg dBμV	Limit Avg dB	Margin dB
0.22	46.1	41.8	63.0	21.2	30.7	53.0	22.3
0.25	43.1	36.8	61.7	24.9	26.6	51.7	25.1
0.64	42.0	39.4	56.0	16.6	32.5	46.0	13.5
0.85	39.4	35.2	56.0	20.8	26.7	46.0	19.3
1.30	37.6	32.9	56.0	23.1	24.0	46.0	22.0
2.99	35.6	30.7	56.0	25.3	22.8	46.0	23.2

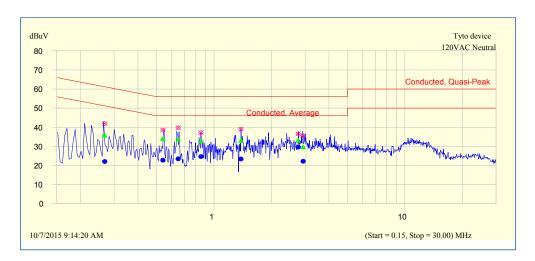




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Plot # 31. AC line conducted emissions test. Line Neutral.

Frequency MHz	Peak dBµV	QP dBμV	Limit QP dB	Margin dB	Avg dBμV	Limit Avg dB	Margin dB
0.54	38.5	34.1	56.0	21.9	22.7	46.0	23.3
0.65	39.7	33.7	56.0	22.3	23.5	46.0	22.5
0.86	37.1	32.9	56.0	23.1	24.6	46.0	21.4
1.39	38.9	33.1	56.0	22.9	23.3	46.0	22.7
2.76	36.5	33.1	56.0	22.9	29.6	46.0	16.4
2.93	35.5	29.8	56.0	26.2	22.2	46.0	23.8



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APPENDIX A Test equipment used.

Test equipment used

	Description	Mai	nufacturer informatio	on	Due
No	- ···· · F ····	Name Model		Serial No	Calibration date
1	MXE EMI Receiver 20 Hz -26.5 GHz	Agilent	N9038A	SII 650114	March 2016
2	Cable RF 1m	Huber-Suhner	Sucoflex 104	21325/4PE	October 2016
3	Double Ridged Guide Antenna 0.75 – 18 GHz	ETS-Lindgren	3115	00143138	December 2016
4	Broadband Horn antenna 15 – 40 GHz	Schwarzbeck Mess-Electronik	BBHA 9170	9170-341	December 2016
5	Double Ridged Waveguide Horn Antenna 1 – 18 GHz	ETS-Lindgren	3117	00139055	December 2016
6	Antenna Biconilog 26 – 6000 MHz	ETS-Lindgren	31142D	0146490	December 2016
7	Spectrum analyzer 20 Hz-40 GHz	Rohde&Schwarz	ESU 40	100168	November 2016
8	MXG Signal Generator 100 KHz - 20 GHz	Agilent	N5183A	6501148	May 2016
9	Attenuator 3 dB DC – 12.4 GHz	HP	8491A	50469	October 2016
10	USB preamplifier 2 GHz – 50 GHz	Keysight	U7227F	MY55380004	January 2017
11	EMI Receiver 9 kHz-6.5 GHz	HP	8546A+85460A	SII 4068	May 2016
12	LISN 9 kHz – 30 MHz	FCC	LISN 250-32-4-16	SII5023	October 2016
13	Transient limiter 0.009-200 MHz	HP	11947A	3107105	August 2016
14	Cable RF 4m	Huber-Suhner	Sucoflex 104PE	21329/4PE	October 2016
15	Cable RF 0.5m	Huber-Suhner	Multiflex 141	520201	October 2016
16	Active Loop antenna 1.0 kHz – 30 MHz	ETS-Lindgren	6507	00144641	December 2016



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Cable Loss (Mast 6 m set cable.)

Point	Frequency (MHz)	Cable Loss (dB)	Point	Frequency (MHz)	Cable Loss (dB)
1	30	0.3	21	1000	2.5
2	50	0.4	22	1100	2.6
3	100	0.6	23	1200	2.8
4	150	0.8	24	1300	2.9
5	200	1.0	25	1400	3.1
6	250	1.1	26	1500	3.2
7	300	1.2	27	1600	3.3
8	350	1.3	28	1700	3.5
9	400	1.5	29	1800	3.6
10	450	1.6	30	1900	3.7
11	500	1.7	31	2000	3.9
12	550	1.8	32	2100	4.0
13	600	1.9	33	2200	4.1
14	650	1.9	34	2300	4.2
15	700	2.0	35	2400	4.4
16	750	2.1	36	2500	4.6
17	800	2.1	37	2600	4.7
18	850	2.2	38	2700	4.8
19	900	2.3	39	2800	4.9
20	950	2.4	40	2900	5.0



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Antenna factor
Biconilog Antenna, ETS-Lindgren mod. 31142D, S/N: 0146490 3 m calibration.

f / MHz	AF / dB/m	f / MHz	AF / dB/m	f / MHz	AF / dB/m
30	18.7	250	12.0	2750	31.0
35	15.7	300	13.8	3000	31.2
40	12.9	400	16.2	3250	32.7
45	10.6	500	18.6	3500	34.5
50	9.0	600	20.2	3750	34.3
60	7.3	700	21.8	4000	34.5
70	7.7	800	22.9	4250	35.3
80	8.2	900	24.1	4500	35.5
90	9.2	1000	24.8	4750	36.1
100	9.4	1250	26.9	5000	37.4
120	8.5	1500	30.2	5250	38.4
140	8.5	1750	28.5	5000	39.9
160	9.1	2000	28.9	5750	38.2
180	10.5	2250	29.8	6000	39.1
200	10.9	2500	32.5		





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Antenna Factor Double Ridged Guide Antenna mfr ETS-Lindgren model 3115 1m calibration

Point	Frequency (MHz)	Antenna Factor (dB/m)
1	1000	23.7
2	1500	25.5
3	2000	28.5
4	2500	28.1
5	3000	29.6
6	3500	31.1
7	4000	32.5
8	4500	32.5
9	5000	33.5
10	5500	34.7
11	6000	36.1
12	6500	36.5
13	7000	37.3
14	7500	38.0
15	8000	37.3
16	8500	37.9
17	9000	38.1
18	9500	38.5
19	10000	38.7
20	10500	38.8
21	11000	38.6
22	11500	38.8
23	12000	38.9
24	12500	39.3
25	13000	40.2
26	13500	40.6
27	14000	40.6
28	14500	40.4
29	15000	39.6
30	15500	39.5
31	16000	39.8
32	16500	40.4
33	17000	41.3
34	17500	42.6
35	18000	43.2

<u>Cable Loss</u> <u>Type: Sucoflex 104PE; Ser.No.21329/4PE; 4 m length</u>

Point	Frequency (GHz)	Cable Loss (dB)
0	0.0-1.8	1.67
1	1.8 – 3.6	2.39
2	3.6 – 5.4	3.04
3	5.4-7.2	3.58
4	7.2-9.0	4.06
5	9.0-10.8	4.49
6	10.8-12.6	4.91
7	12.6-14.4	5.31
8	14.4-16.2	5.66
9	16.2-18.00	6.01





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Antenna Factor
Broadband Horn Antenna model BBHA 9170 1m calibration

Point	Frequency (GHz)	Antenna Factor (dB/m)
1	15.0	38.5
2	16.0	37.7
3	17.0	38.1
4	18.0	37.9
5	19.0	38.0
6	20.0	38.0
7	21.0	37.9
8	22.0	38.2
9	23.0	39.6
10	24.0	39.6
11	25.0	39.3
12	26.0	39.5
13	27.0	39.6
14	28.0	39.6
15	30.0	40.1
16	32.0	41.2
17	34.0	41.5
18	35.0	41.9
19	36.0	42.2
20	38.0	43.8
21	40.0	43.2

Antenna Factor For Antenna Loop MFR ETS Lindgren, Type/Model 6507, S/N: 00144641

No.	Frequency MHz	Magnetic antenna factor, dBS/m	Electric antenna factor, dB/m
1	9	-21.5	30.0
2	10	-22.0	29.5
3	20	-27.7	23.8
4	50	-32.2	19.4
5	75	-33.0	18.5
6	100	-33.4	18.2
7	150	-33.6	17.9
8	250	-33.7	17.9
9	500	-33.8	17.8
10	750	-33.8	17.7
11	1000	-33.8	17.7
12	2000	-33.7	17.9
13	3000	-33.8	17.8
14	4000	-34.0	17.5
15	5000	-34.3	17.2
16	10000	-35.2	16.4
17	15000	-35.8	15.8
18	20000	-36.0	15.6
19	25000	-36.2	15.3
20	30000	-36.4	15.2





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APPENDIX B Photo of the test setups.

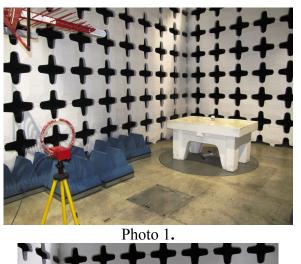








Photo 3.

Photo 4.

Setups of radiated emission test.



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APPENDIX C Abbreviations and acronyms.

The following abbreviations and acronyms are applicable to this test report:

AC alternating current

cm centimeter dB decibel

dBm decibel referred to one milliwatt $dB(\mu V)$ decibel referred to one microvolt

 $dB(\mu V/m)$ decibel referred to one microvolt per meter

EBW emission bandwidth.

EMC electromagnetic compatibility

EUT equipment under test

GHz gigahertz
H height
Hz hertz
kHz kilohertz
L length

LNA low noise amplifier

m meter

Mbps megabit per second

MHz megahertz NA not applicable

OFDM Orthogonal Frequency Division Multiple Access

PRBS pseudo random binary sequence

QP quasi-peak
RF radio frequency
RE radiated emission
SA spectrum analyzer
rms root mean square

W width