

TEST REPORT

ACCORDING TO:

**FCC CFR 47 Part 15 subpart C, section 15.231 and subpart B, Class B;
RSS-210, Annex 1 and ICES-003, Class B**

FOR:

**Essence Smartcare Ltd.
Emergency Pendant
with/without Fall Detection
Model: ES700EPAJ / ES700EPPJ
FCC ID:2ARFP-ES700EPAJ
IC: 24417-ES700EPAJ**

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1 Applicant information

Client name: Essence Smartcare Ltd.
Address: 12 Abba Eban Avenue, Ackerstein Towers Bldg. D, Herzliya 4612001, Israel
Telephone: +972 73 244 77 77
Fax: +972 9 772 99 62
E-mail: talco@essence-grp.com
Contact name: Mr. Tal Cohen

2 Equipment under test attributes

Product name: Emergency Pendant with/without Fall Detection
Product type: Transceiver
Model(s): ES700EPAJ / ES700EPPJ
Serial number: 46180945000B8C40
Hardware version: 2.A
Software release: 1.11
Receipt date 17-Mar-19

3 Manufacturer information

Manufacturer name: Essence Smartcare Ltd.
Address: 12 Abba Eban Avenue, Ackerstein Towers Bldg. D, Herzliya 4612001, Israel
Telephone: +972 73 244 77 77
Fax: +972 9 772 99 62
E-Mail: talco@essence-grp.com
Contact name: Mr. Tal Cohen

4 Test details

Project ID: 32531
Location: Primary: Hermon Laboratories Ltd. P.O. Box 23, Binyamina 3055001, Israel
Satellite: Hermon Laboratories Ltd. Hefetz-Haim 10, Tel Aviv 6744124, Israel
Test started: 17-Mar-19
Test completed: 04-Apr-19
Test specification(s): FCC CFR 47 Part 15 subpart C, section 15.231(a) and subpart B, Class B;
RSS-210, Annex 1 and ICES-003, Class B

5 Tests summary

Test	Status
Transmitter characteristics	
FCC Part 15, Section 231(a) / RSS-210, Section A1.1, Periodic operation requirements	Pass
FCC Part 15, Section 231(b) / RSS-210, Section A1. 2, Field strength of emissions	Pass
FCC Part 15, Section 231(c) / RSS-210, Section A1.3, Occupied bandwidth	Pass
FCC Part 15, Section 207 / RSS-Gen, Section 8.8, Conducted emission	Not required*
FCC Part 15, Section 203 / RSS-Gen, Section 6.8, Antenna requirements	Pass
Unintentional emissions	
FCC Part 15, Section 107 / ICES-003, Section 6.1, Conducted emission at AC power port	Not required*
FCC Part 15, Section 109 / ICES-003, Section 6.2, Radiated emission	Pass

* - The EUT is battery powered.

This test report supersedes the previously issued test report identified by Doc ID: ESSRAD_FCC.32531.

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.

The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

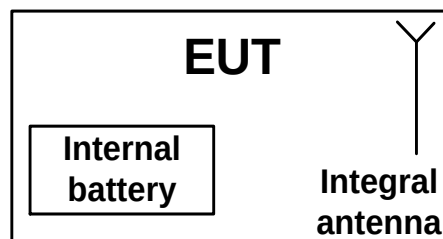
	Name and Title	Date	Signature
Tested by:	Mr. I. Zilberstein, test engineer	17-Mar-19 – 04-Apr-19	
	Mr. S. Samokha, test engineer		
Reviewed by:	Mrs. Y. Rapin, technical writer	29-Apr-19	
Approved by:	Mr. K. Zushchuk, project and customer manager, EMC and radio group	06-Aug-19	

6 EUT description

6.1 General information

The EUT, models ES700EPAJ / ES700EPPJ, are jewelry version of battery powered Emergency Pendant with Fall Detection /without Fall Detection, operate at 916.5MHz.
For the purpose of this test Report the EUT was tested in multifunction operation mode.

6.2 Test configuration



6.3 Transmitter characteristics

Type of equipment						
X	Stand-alone (Equipment with or without its own control provisions)					
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)					
	Plug-in card (Equipment intended for a variety of host systems)					
Operating frequency		916.5 MHz				
Maximum rated output power		At transmitter 50 Ω RF output connector				
		Field strength at 3 m distance			86.4 dB(μV/m) – peak 62.0 dB(μV/m) -average	
Is transmitter output power variable?		X	No			
			Yes			
				continuous variable		
				stepped variable with stepsize		dB
				minimum RF power		dBm
		maximum RF power		dBm		
Antenna connection						
unique coupling		standard connector		X	integral	
				X	with temporary RF connector without temporary RF connector	
Antenna/s technical characteristics						
Type		Manufacturer		Model number		
Integral		Essence Security		Printed		
				Gain		
				- 8.2 dBm		
Transmitter aggregate data rate/s			38.4 kbps			
Type of modulation			2FSK			
Transmitter power source						
X	Battery	Nominal rated voltage	3.0 VDC	Battery type	Alkaline	
	DC	Nominal rated voltage	VDC			
	AC mains	Nominal rated voltage	VAC	Frequency		
Common power source for transmitter and receiver			X	yes	no	



Test specification:	FCC Part 15, Section 231(a) / RSS-210, Section A1.1.1, Periodic operation requirements		
Test procedure:	Supplier declaration		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 34 %	Air Pressure: 1008 hPa	Power: 3 VDC
Remarks:			

7 Transmitter tests according to FCC 47CFR part 15 subpart C / RSS-210

7.1 Periodic operation requirements

7.1.1 General

The EUT was verified for compliance with periodic operation requirements listed below:

- Continuous transmissions such as voice, video and the radio control of toys are not permitted;
- A manually operated transmitter shall employ switch that will automatically deactivate the transmitter within not more than 5 seconds of being released;
- A transmitter activated automatically shall cease transmission within 5 seconds after activation;
- Periodic transmissions, excluding polling or supervision transmissions, at regular predetermined intervals are not permitted;
- Total duration of polling or supervision transmissions, including data, to determine system integrity in security or safety applications shall not exceed 2 seconds per hour;
- Transmission of set-up information for security systems may exceed the transmission duration limits of 5 seconds, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

The rationale for compliance with the above requirements was either test results or supplier declaration. The summary of results is provided in Table 7.1.1.

7.1.2 Test procedure for transmitter shut down test

7.1.2.1 The EUT was set up as shown in Figure 7.1.1.

7.1.2.2 The spectrum analyzer center frequency was adjusted to the EUT carrier, span set to zero and video triggered for transmission.

7.1.2.3 The transmitter was activated either manually or automatically. Once manually operated transmitter was activated, the switch was immediately released.

7.1.2.4 The transmission time was captured and shown in Plot 7.1.1.

7.1.3 Test procedure for measurements of polling / supervision transmission duration

7.1.3.1 The EUT was set up as shown in Figure 7.1.1.

7.1.3.2 The spectrum analyzer center frequency was adjusted to the EUT carrier, span set to zero and video triggered for transmission.

7.1.3.3 The transmission time was captured and shown in Plot 7.1.1.

Figure 7.1.1 Setup for transmitter shut down test





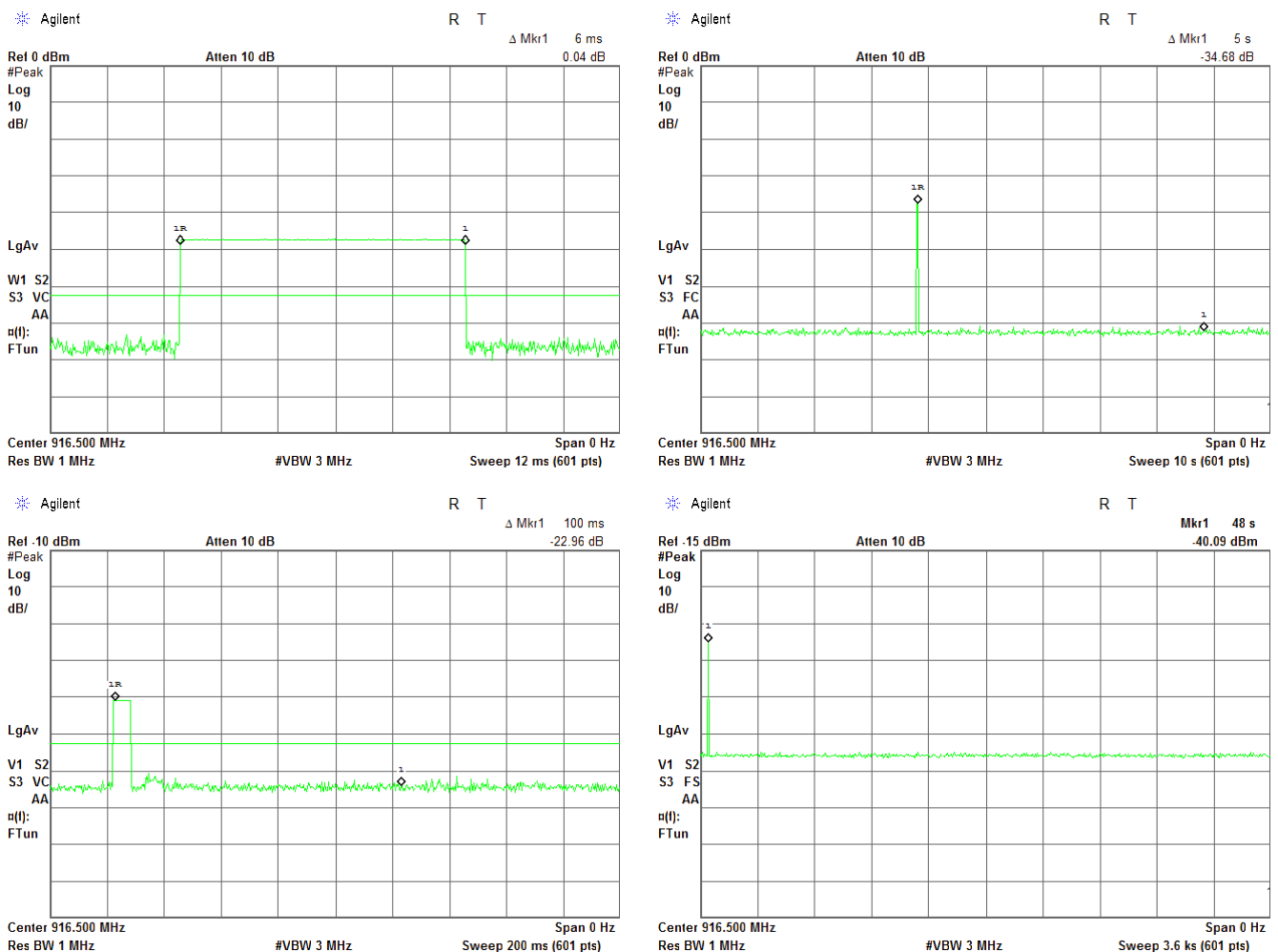
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Test specification:	FCC Part 15, Section 231(a) / RSS-210, Section A1.1.1, Periodic operation requirements		
Test procedure:	Supplier declaration		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 34 %	Air Pressure: 1008 hPa	Power: 3 VDC
Remarks:			

Table 7.1.1 Periodic operation requirements

Requirement	Rationale	Verdict
Continuous transmissions are not permitted	Supplier declaration	Comply
A manually operated transmitter shall be deactivated within not more than 5 seconds of switch being released	Plot 7.1.1	Comply
Transmitter activated automatically shall cease transmission within 5 seconds	Plot 7.1.1	Comply
Periodic transmissions at regular predetermined intervals are not permitted	Supplier declaration	Comply
Total duration of polling or supervision transmissions shall not exceed 2 seconds per hour	Plot 7.1.1	Comply
Transmission of set-up information for security systems may exceed the transmission duration limits of 5 seconds, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.	Supplier declaration	Comply

Plot 7.1.1 Transmitter shut down test result





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Report ID: ESSRAD_FCC.32531_rev1
Date of Issue: 6-Aug-19

Test specification:	FCC Part 15, Section 231(a) / RSS-210, Section A1.1.1, Periodic operation requirements		
Test procedure:	Supplier declaration		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 34 %	Air Pressure: 1008 hPa	Power: 3 VDC
Remarks:			

Table 7.1.2 Total duration of polling / supervision transmissions

Duration, ms	Repetition period, ms	Maximum number of transmissions within 1 hour	Total duration within 1 hour, ms
6.0	NA	1	6.0

Reference numbers of test equipment used

HL 3818	HL 4135						
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Full description is given in Appendix A.



Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

7.2 Field strength of emissions

7.2.1 General

This test was performed to measure field strength of fundamental and spurious emissions from the EUT. Specification test limits are given in Table 7.2.1 and Table 7.2.2.

Table 7.2.1 Radiated fundamental emission limits

Fundamental frequency, MHz	Field strength at 3 m, dB(μV/m)	
	Peak	Average
916.5	102.0	82.0

Table 7.2.2 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m, dB(μV/m)				
	Within restricted bands			Outside restricted bands	
	Peak	Quasi Peak	Average	Peak	Average
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	82.0	62.0
0.090 – 0.110	NA	108.5 – 106.8**	NA		
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**		
0.490 – 1.705	NA	73.8 – 63.0**	NA		
1.705 – 30.0*		69.5			
30 – 88		40.0			
88 – 216		43.5			
216 – 960		46.0			
960 - 1000		54.0			
Above 1000	74.0	NA	54.0		

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$\text{Lim}_{S2} = \text{Lim}_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

** - The limit decreases linearly with the logarithm of frequency.

Note 1: The fundamental emission limit in dB(μV/m) was calculated as follows:

$$\text{Lim}_{AVR} = 20 \times \log (56.81818 \times F - 6136.3636) \text{ - within } 130 - 174 \text{ MHz band;}$$

$$\text{Lim}_{AVR} = 20 \times \log (41.6667 \times F - 7083.3333) \text{ - within } 260 - 470 \text{ MHz band,}$$

where F is the carrier frequency in MHz.

The limit for spurious emissions was 20 dB lower than fundamental emission limit.

The above limits provided in terms of average values, peak limit was 20 dB above the average limit.

Note 2: The above field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.



Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

7.2.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.2.2.1 The EUT was set up as shown in Figure 7.2.1 energized and the performance check was conducted.

7.2.2.2 The measurements were performed in two EUT orthogonal positions shown in Photograph 7.2.1.

7.2.2.3 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.2.2.4 The worst test results (the lowest margins), recorded in Table 7.2.3, Table 7.2.5 and shown in the associated plots.

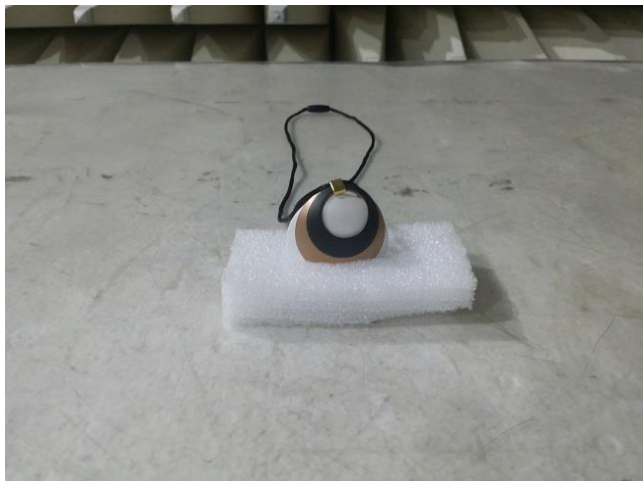
7.2.3 Test procedure for spurious emission field strength measurements above 30 MHz

7.2.3.1 The EUT was set up as shown in Figure 7.2.2 / Figure 7.2.3, energized and the performance check was conducted.

7.2.3.2 The measurements were performed in two EUT orthogonal positions shown in Photograph 7.2.1.

7.2.3.3 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.2.3.4 The worst test results (the lowest margins), recorded in Table 7.2.3, Table 7.2.5 and shown in the associated plots.

Photograph 7.2.1 EUT orthogonal positions**EUT POSITION X****EUT POSITION Y**



Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Figure 7.2.1 Setup for spurious emission field strength measurements below 30 MHz

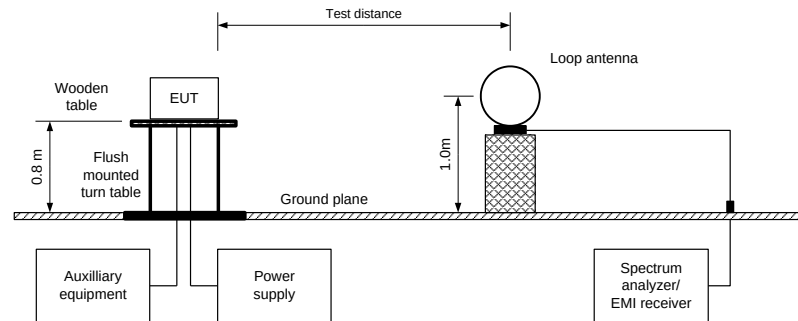


Figure 7.2.2 Setup for spurious emission field strength measurements in 30 -1000 MHz

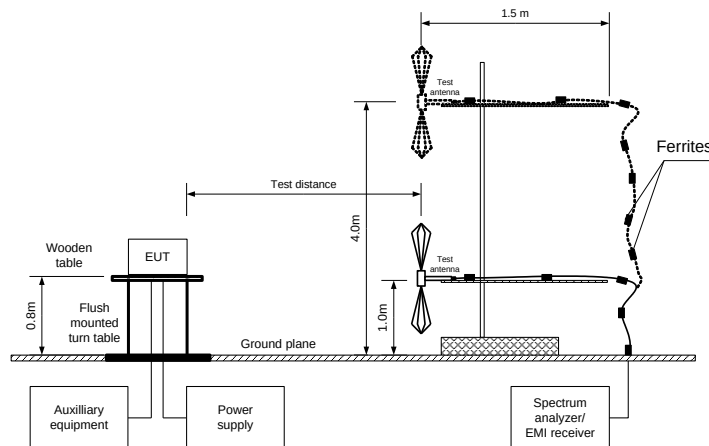
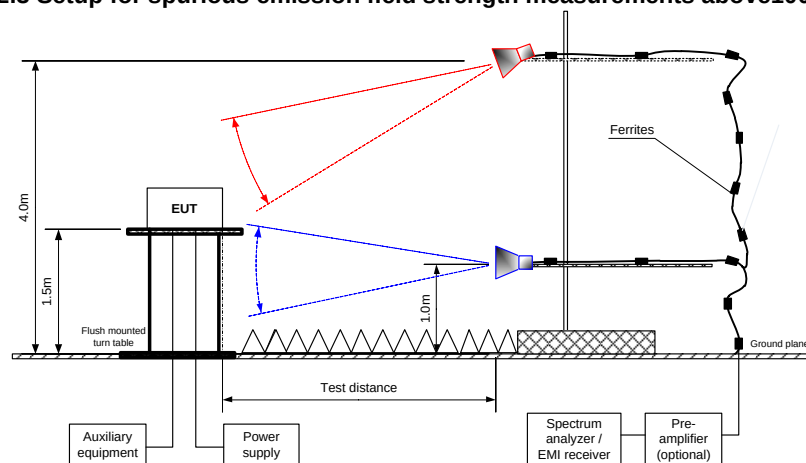


Figure 7.2.3 Setup for spurious emission field strength measurements above 1000 MHz





Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Table 7.2.3 Field strength of fundamental emission, spurious emissions within restricted bands at frequencies above 1 GHz

TEST DISTANCE:	3 m
MODULATION:	2FSK
BIT RATE:	38.4 kbps
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
INVESTIGATED FREQUENCY RANGE:	0.009 – 10000 MHz
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz) 1.0 MHz (above 1000 MHz)
VIDEO BANDWIDTH:	≥ Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

F, MHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength				Verdict
	Pol.	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Calculated, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
Fundamental emissions											
916.482	Hor	1.00	-180	86.4	102.0	-15.6	86.4	62.0	82.0	-20.0	Pass
Spurious emissions											
2749.568	Vert	1.00	24	55.41	74.0	-18.59	55.41	31.01	54.0	-22.99	Pass
3666.236	Vert	1.27	0	44.76	74.0	-29.24	44.76	20.36	54.0	-33.64	Pass
4582.405	Vert	1.79	18	55.61	74.0	-18.39	55.61	31.21	54.0	-22.79	Pass
7332.135	Vert	1.27	-65	49.34	74.0	-24.66	49.34	24.94	54.0	-29.06	Pass
8248.580	Hor	2.31	-16	52.58	74.0	-21.42	52.58	28.18	54.0	-25.82	Pass

*- EUT front panel refers to 0 degrees position of turntable.

** - Margin, dB = Measured (calculated) value, dB(μV/m) - Limit, dB(μV/m)

*** Max value was obtained in vertical EUT position and at Unom input power voltage.

Table 7.2.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Number of pulses during 100 ms	Duration, ms	Period, ms		
6	1	NA	NA	NA	-24.4

*- Average factor was calculated as follows

for pulse train shorter than 100 ms:

$$\text{Average factor} = 20 \times \log_{10} \left(\frac{\text{Pulse duration}}{\text{Pulse period}} \times \frac{\text{Burst duration}}{\text{Train duration}} \times \text{Number of bursts within pulse train} \right)$$

for pulse train longer than 100 ms:

$$\text{Average factor} = 20 \times \log_{10} \left(\frac{\text{Pulse duration}}{\text{Pulse period}} \times \frac{\text{Burst duration}}{100 \text{ ms}} \times \text{Number of bursts within 100 ms} \right)$$



Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Table 7.2.5 Field strength of emissions below 1 GHz within restricted bands

TEST DISTANCE: 3 m
EUT POSITION: X and Y
MODULATION: 2FSK
BIT RATE: 38.4 kbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 1.0 kHz (9 kHz – 150 kHz)
9.0 kHz (150 kHz – 30 MHz)
120 kHz (30 MHz – 1000 MHz)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
Biconilog (30 MHz – 1000 MHz)

Frequency, MHz	Peak emission, dB(μV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
No emissions were found								Pass

*- Margin = Measured emission - specification limit.

** - EUT front panel refer to 0 degrees position of turntable.

Table 7.2.6 Field strength of emissions outside restricted bands

TEST DISTANCE: 3 m
EUT POSITION: X and Y
MODULATION: 2FSK
BIT RATE: 38.4 kbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
INVESTIGATED FREQUENCY RANGE: 0.009 - 10000 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
Biconilog (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)

Frequency, MHz	Field strength of spurious, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(μV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
1833.175	44.19	Vert	1.79	5	86.4	42.21	20.0	22.21	Pass
5499.074	47.20	Vert	1.27	180	86.4	39.20	20.0	19.20	Pass
6415.466	50.05	Vert	1.27	168	86.4	36.35	20.0	16.35	Pass

*- EUT front panel refers to 0 degrees position of turntable.

** - Margin = Attenuation below carrier – specification limit.



Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Table 7.2.7 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 - 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 - 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Reference numbers of test equipment used

HL 0446	HL 3903	HL 4360	HL 4933	HL 5405	HL 5288		
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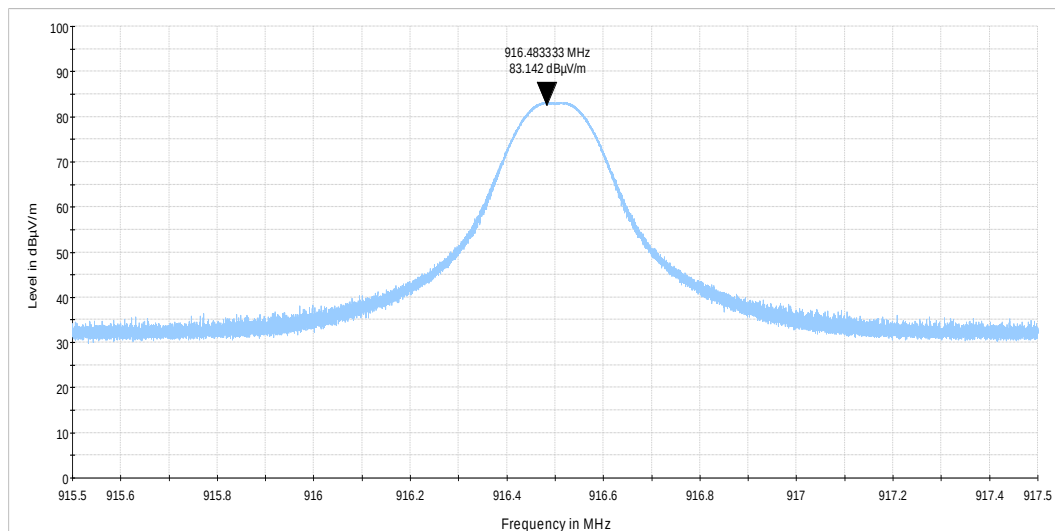
Full description is given in Appendix A.



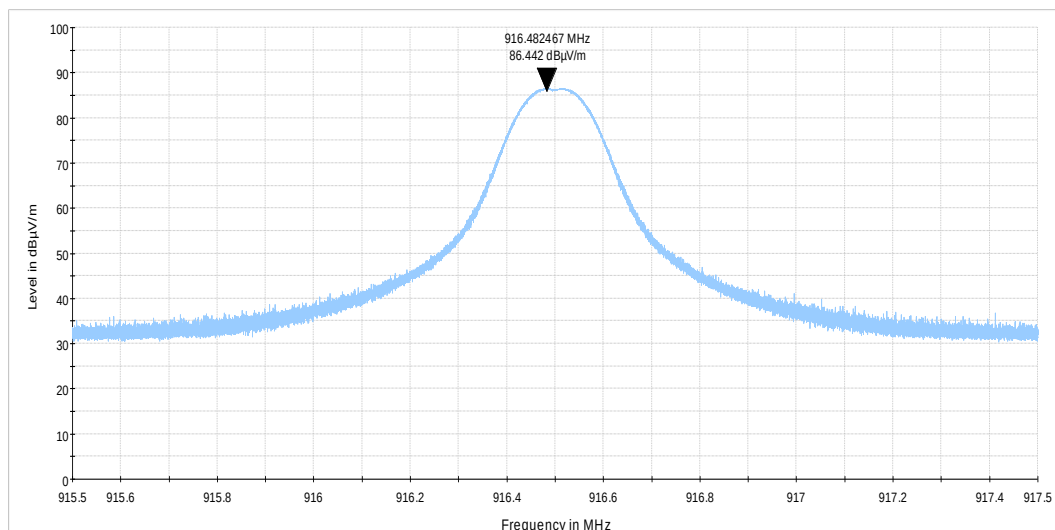
Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Plot 7.2.1 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: X

**Plot 7.2.2 Radiated emission measurements at the fundamental frequency**

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Y

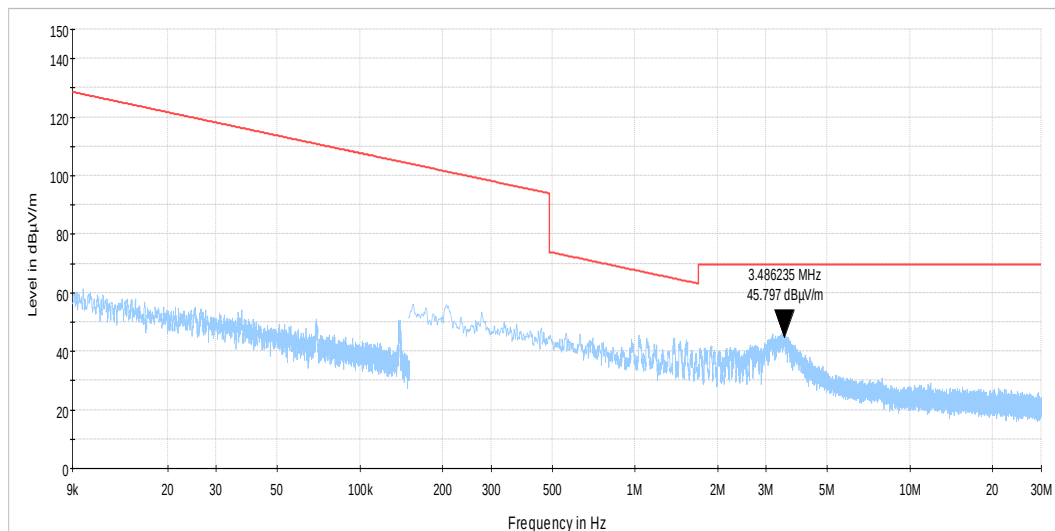




Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

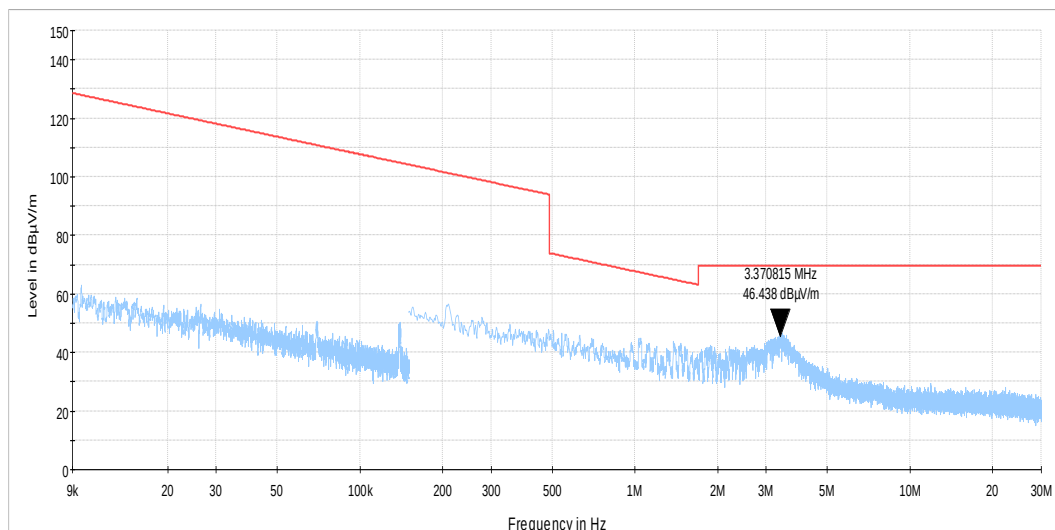
Plot 7.2.3 Radiated emission measurements from 9 kHz to 30 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: X



Plot 7.2.4 Radiated emission measurements from 9 kHz to 30 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Y

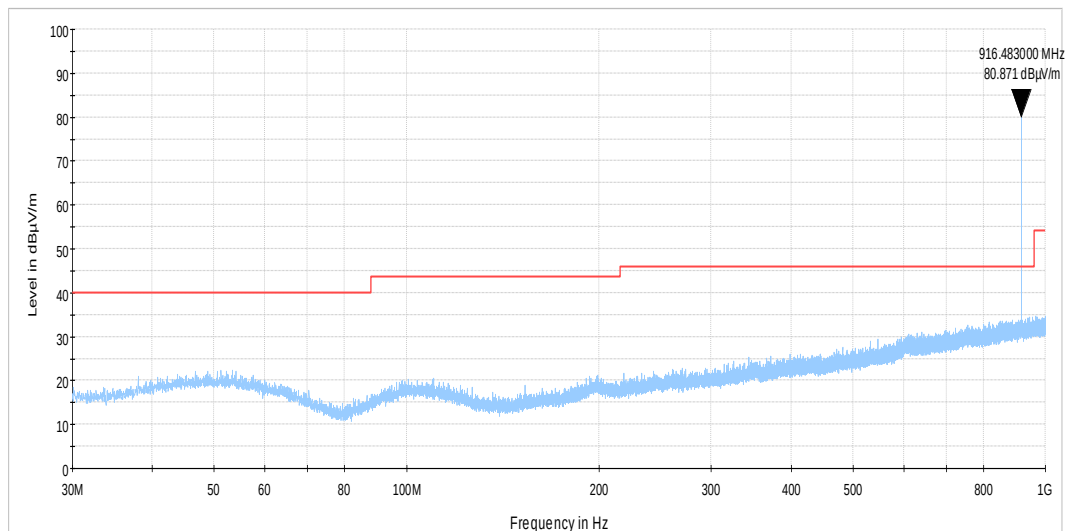




Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

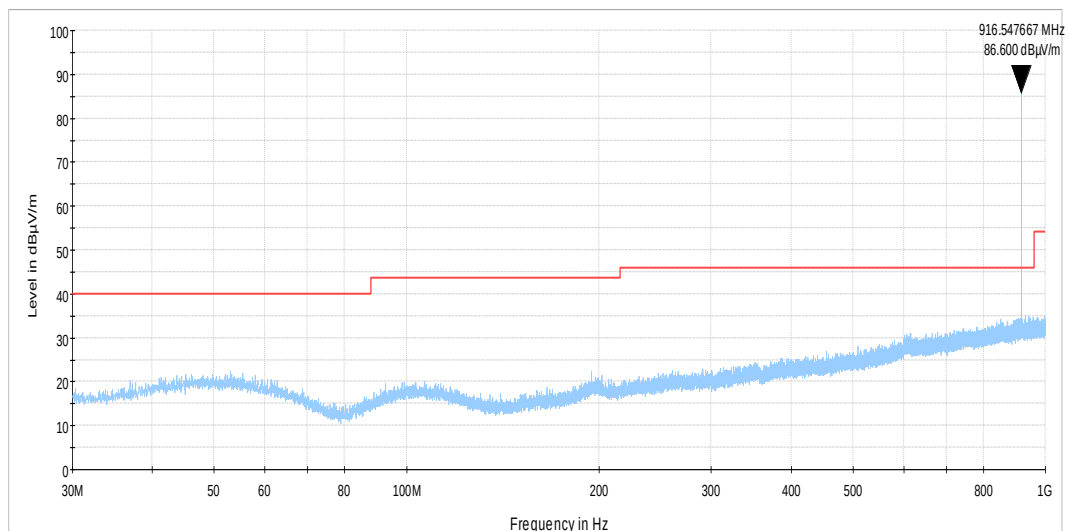
Plot 7.2.5 Radiated emission measurements from 30 to 1000 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: X



Plot 7.2.6 Radiated emission measurements from 30 to 1000 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Y

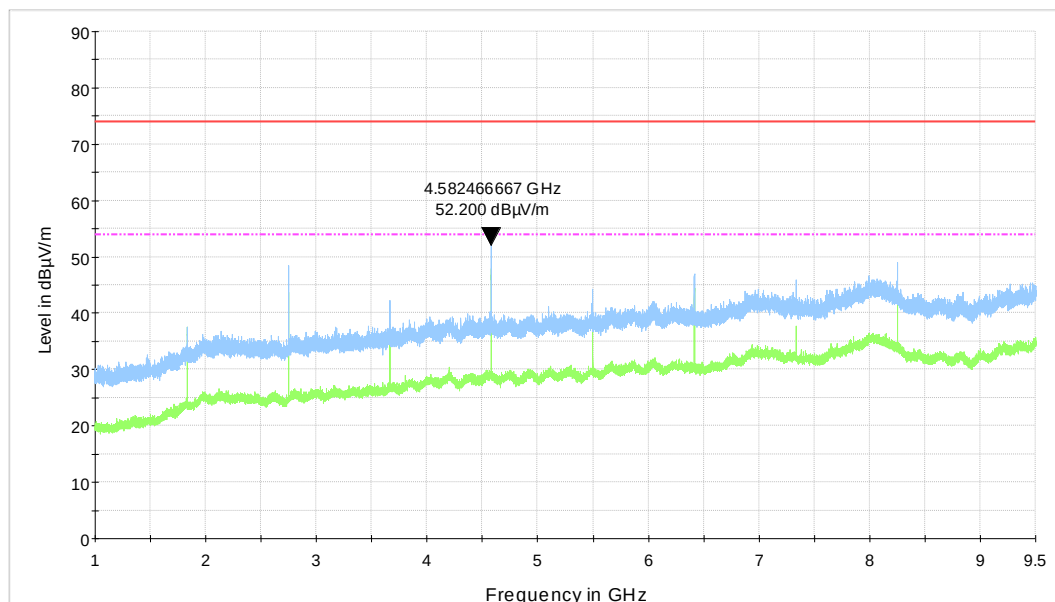




Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

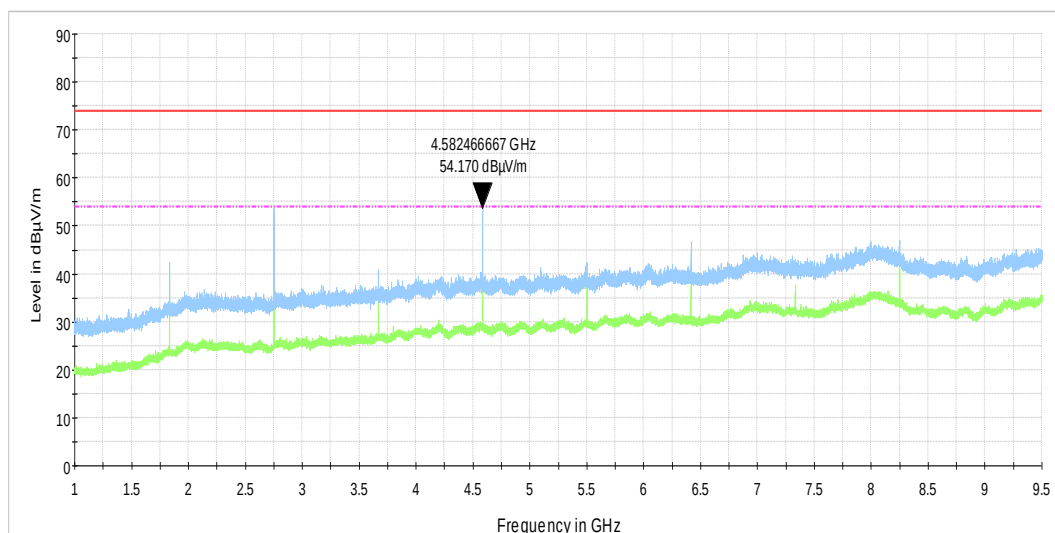
Plot 7.2.7 Radiated emission measurements from 1 to 9.5 GHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: X



Plot 7.2.8 Radiated emission measurements from 1 to 9.5 GHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Y



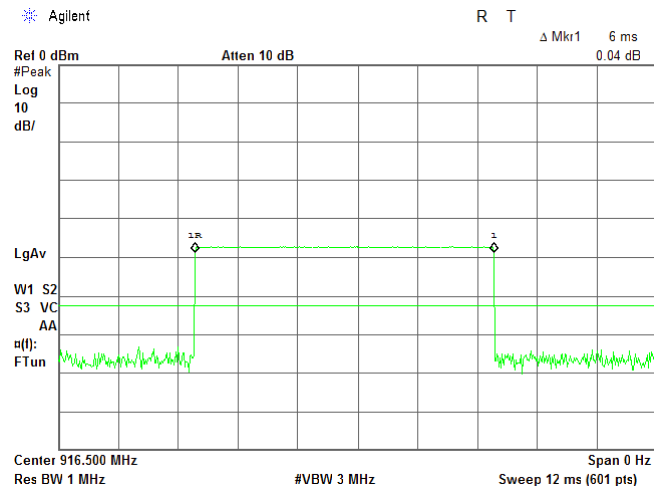


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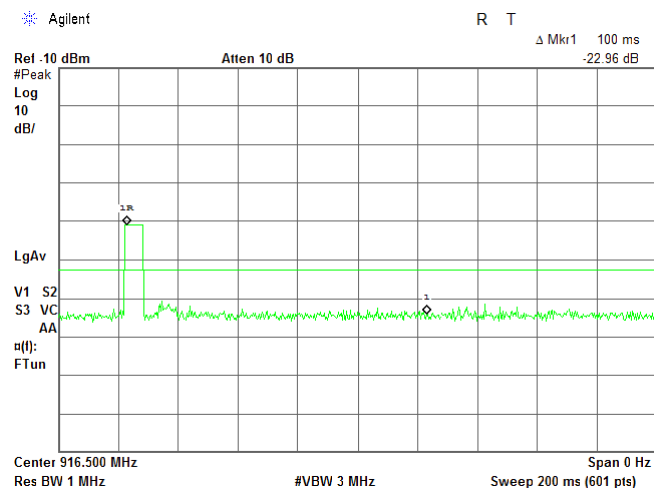
Report ID: ESSRAD_FCC.32531_rev1
Date of Issue: 6-Aug-19

Test specification:	FCC Part 15, Section 231(b) / RSS-210, Section A1.1.2, Field strength of emissions		
Test procedure:	ANSI C63.10, Section 6.5, 6.6		
Test mode:	Compliance	Verdict:	PASS
Date(s):	31-Mar-19		
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1005 hPa	Power: 3 VDC
Remarks:			

Plot 7.2.9 Transmission pulse duration



Plot 7.2.10 Transmission pulse period





Test specification:	FCC Part 15, Section 231(c) / RSS-210, Section A1.1.3, Occupied bandwidth		
Test procedure:	ANSI C63.10, Section 6.9.2		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 35 %	Air Pressure: 1010 hPa	Power: 3 VDC
Remarks:			

7.3 Occupied bandwidth test

7.3.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.3.1. The test results are provided in Table 7.3.2 and associated plots.

Table 7.3.1 Occupied bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc	Maximum allowed bandwidth, % of the carrier frequency
70 - 900	20.0	0.25
Above 900		0.50

*- Modulation envelope reference points provided in terms of attenuation below modulated carrier.

7.3.2 Test procedure

7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

7.3.2.2 The EUT was set to transmit modulated carrier.

7.3.2.3 The transmitter occupied bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.3.2 and associated plot.

Figure 7.3.1 Occupied bandwidth test setup





Test specification:	FCC Part 15, Section 231(c) / RSS-210, Section A1.1.3, Occupied bandwidth		
Test procedure:	ANSI C63.10, Section 6.9.2		
Test mode:	Compliance	Verdict: PASS	
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 35 %	Air Pressure: 1010 hPa	Power: 3 VDC
Remarks:			

Table 7.3.2 Occupied bandwidth test results

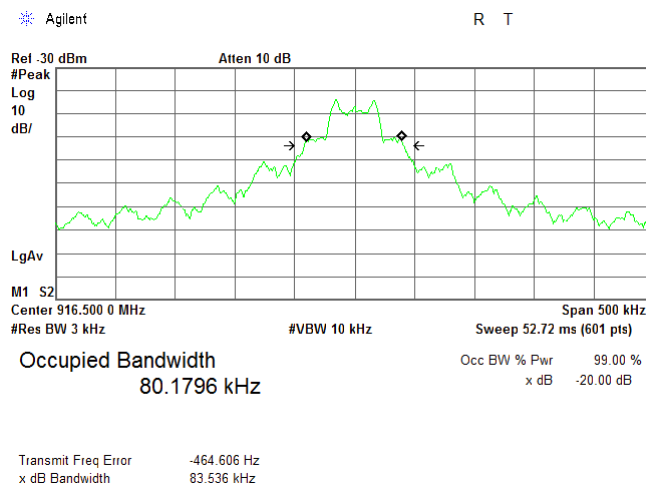
DETECTOR USED: Peak hold
 RESOLUTION BANDWIDTH: 1kHz
 VIDEO BANDWIDTH: 3kHz
 MODULATION ENVELOPE REFERENCE POINTS: 20 dBc
 MODULATION: 2 FSK
 BIT RATE: 38.4kbps
 DETECTOR USED: Peak hold

Carrier frequency, MHz	20 dBc occupied BW, kHz	Limit		Margin, kHz	Verdict
		% of the carrier frequency	kHz		
916.5	83.536	0.5	4582.5	-4498.964	Pass

Reference numbers of test equipment used

HL 3818	HL 4135							
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Full description is given in Appendix A.

Plot 7.3.1 Occupied bandwidth test result



Test specification:	FCC Part 15, Section 203 / RSS-Gen, Section 7.1.4, Antenna requirements		
Test procedure:	Visual inspection		
Test mode:	Compliance	Verdict:	PASS
Date(s):	01-Apr-19		
Temperature: 24.2 °C	Relative Humidity: 48 %	Air Pressure: 1010 hPa	Power: NA
Remarks:			

7.4 Antenna requirements

The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.4.1.

Table 7.4.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	Visual inspection	Comply
The transmitter employs a unique antenna connector	NA	
The transmitter requires professional installation	NA	

Photograph 7.4.1 Antenna assembly





Test specification:	Radiated emission, Class B FCC CFR 47, Section 15.109; ICES-003, Section 6.2		
Test procedure:	ANSI C63.4, Sections 8.3 and 12.2.5		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1011 hPa	Power: 3 VDC
Remarks:			

8 Unintentional emissions according to FCC 47CFR part 15 subpart B and ICES-003 requirements

8.1 Radiated emission measurements

8.1.1 General

This test was performed to measure radiated emissions from the EUT enclosure. The specification test limits are given in Table 8.1.1.

Table 8.1.1 Radiated emission test limits

Frequency, MHz	Class B limit, dB(μV/m)		Class A limit, dB(μV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

* The limit for test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $\text{Lim}_{S2} = \text{Lim}_{S1} + 20 \log(S1/S2)$, where $S1$ and $S2$ – standard defined and test distance respectively in meters.

8.1.2 Test procedure for measurements in semi-anechoic chamber

8.1.2.1 30 – 1000 MHz range: The EUT was set up as shown in Figure 8.1.1 and the associated photographs, energized and the EUT performance was checked.

8.1.2.2 The measurements were performed in the anechoic chamber at 3 m test distance. The specified frequency range was investigated with the antenna connected to the EMI receiver. To find the highest emission the turntable was rotated 360° and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal polarizations. The EUT cables position was varied to maximize emission.

8.1.2.3 1000 – 5000 MHz range: The EUT was set up as shown in Figure 8.1.2 and the associated photographs, energized and the EUT performance was checked.

8.1.2.4 The measurements were performed in the semi anechoic chamber at 3 m test distance. The specified frequency range was investigated with the antenna connected to the EMI receiver. To find the highest emission the turntable was rotated 360° and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal polarizations. In order to stay within the 3 dB beamwidth while keeping the antenna height scanned from 1 to 4 m, a few sweeps with different antenna angles over the entire height were performed.

8.1.2.5 The worst test results with respect to the limits were recorded in Table 8.1.2 and shown in the associated plots.



Test specification:	Radiated emission, Class B FCC CFR 47, Section 15.109; ICES-003, Section 6.2		
Test procedure:	ANSI C63.4, Sections 8.3 and 12.2.5		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1011 hPa	Power: 3 VDC
Remarks:			

Figure 8.1.1 Setup for radiated emission measurements below 1 GHz

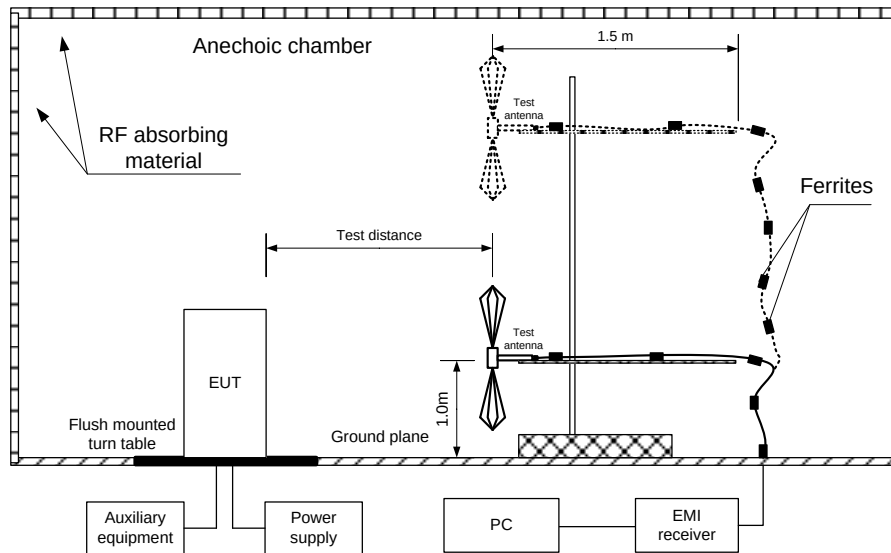
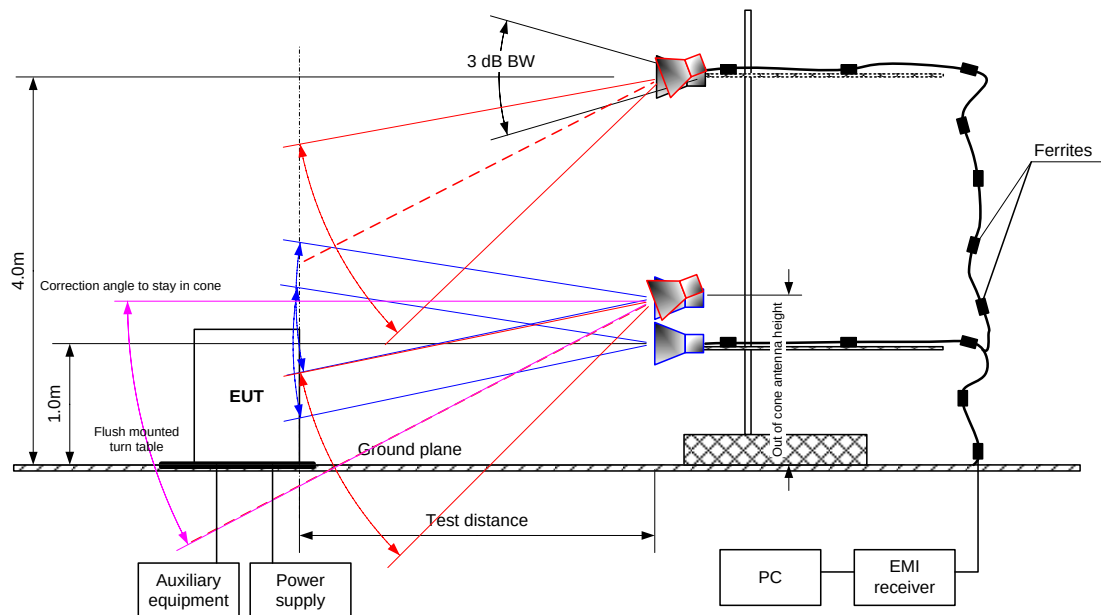


Figure 8.1.2 Setup for radiated emission measurements above 1 GHz





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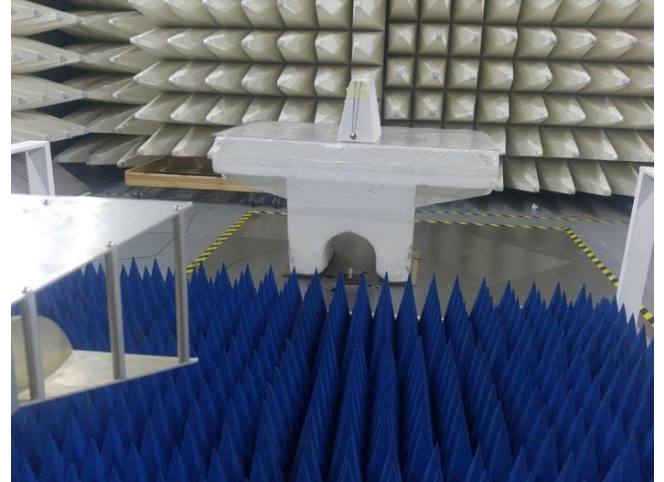
Report ID: ESSRAD_FCC.32531_rev1
Date of Issue: 6-Aug-19

Test specification:	Radiated emission, Class B FCC CFR 47, Section 15.109; ICES-003, Section 6.2		
Test procedure:	ANSI C63.4, Sections 8.3 and 12.2.5		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1011 hPa	Power: 3 VDC
Remarks:			

Photograph 8.1.1 Setup for radiated emission measurements, general view

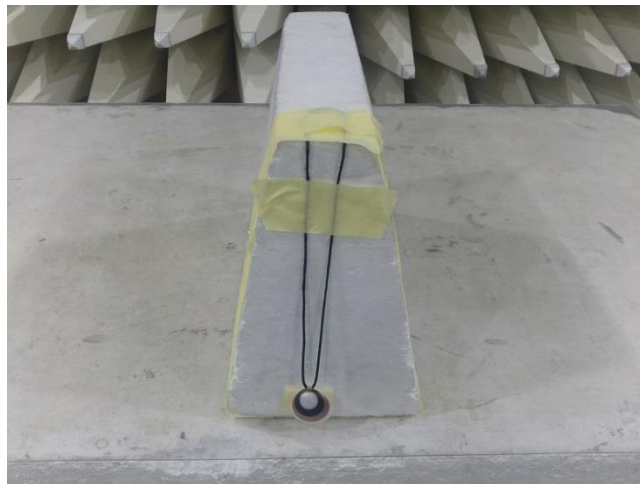


Below 1 GHz



Above 1 GHz

Photograph 8.1.2 Setup for radiated emission measurements, EUT cabling





Test specification:	Radiated emission, Class B FCC CFR 47, Section 15.109; ICES-003, Section 6.2		
Test procedure:	ANSI C63.4, Sections 8.3 and 12.2.5		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1011 hPa	Power: 3 VDC
Remarks:			

Table 8.1.2 Radiated emission test results

EUT SET UP: TABLE-TOP
TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / QUASI-PEAK
FREQUENCY RANGE: 30 MHz – 1000 MHz
RESOLUTION BANDWIDTH: 120 kHz

Frequency, MHz		Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
Peak emission, dB(μV/m)	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*					
No emission peaks were found								Pass

TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz – 5000 MHz
RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak			Average			Antenna polarization	Antenna tilt, degrees	Antenna height, m	Turn-table position**, degrees	Verdict
	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*					
No emission peaks were found											Pass

*- Margin = Measured emission - specification limit.

** - EUT front panel refers to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 3903	HL 4360	HL 4933	HL 5288	HL 5405			
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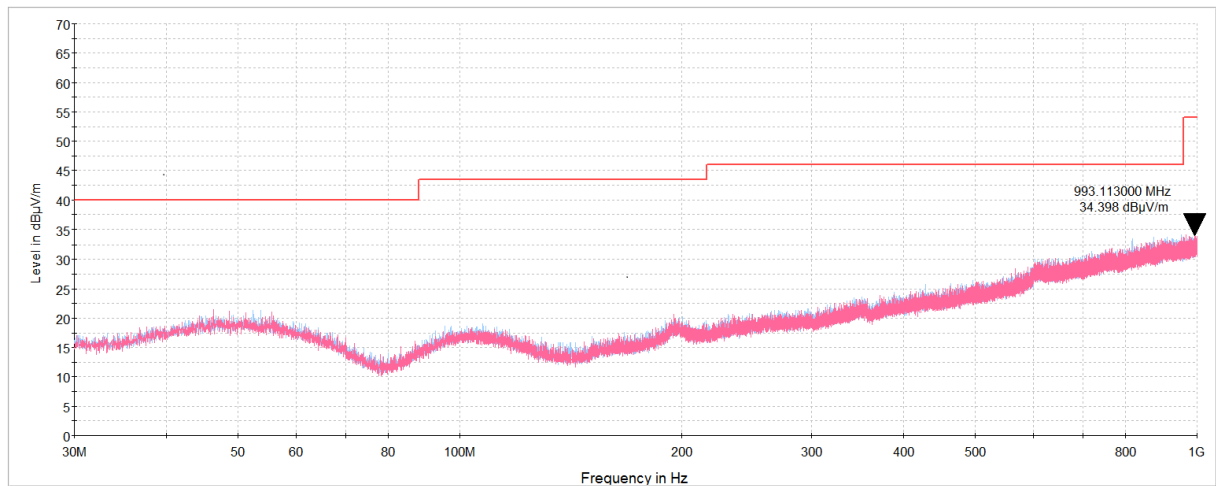
Full description is given in Appendix A.



Test specification:	Radiated emission, Class B FCC CFR 47, Section 15.109; ICES-003, Section 6.2		
Test procedure:	ANSI C63.4, Sections 8.3 and 12.2.5		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Mar-19		
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1011 hPa	Power: 3 VDC
Remarks:			

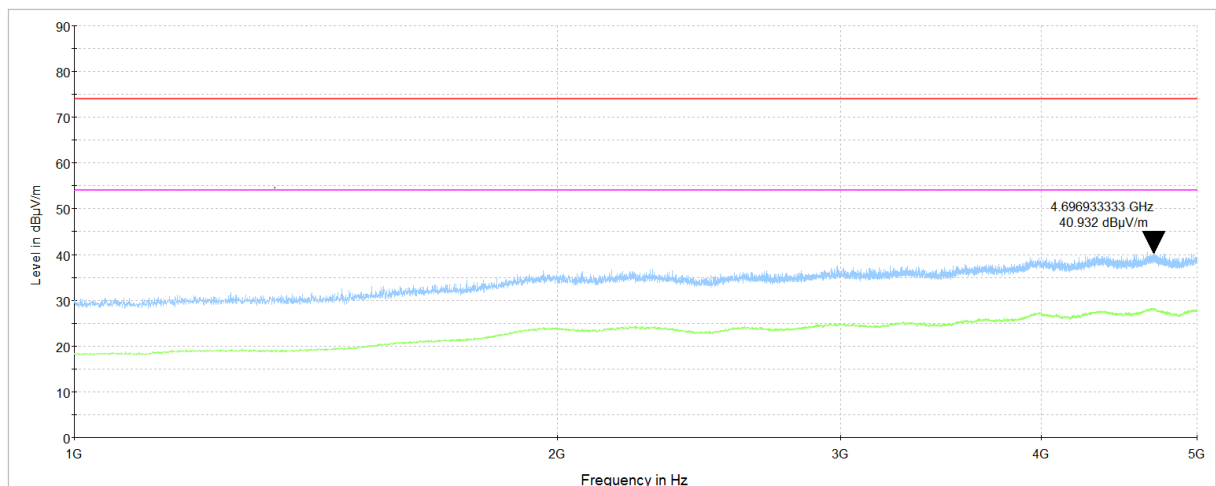
Plot 8.1.1 Radiated emission measurements in 30 - 1000 MHz range,
vertical & horizontal antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m



Plot 8.1.2 Radiated emission measurements above 1000 MHz,
vertical & horizontal antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m



9 APPENDIX A Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, Radio, Safety, Environmental and Telecommunication testing facility.

Hermon Laboratories is recognized and accredited by the Federal Communications Commission (USA) for relevant parts of Code of Federal Regulations 47 (CFR 47), Test Firm Registration Number is 927748, Designation Number is IL1001; Recognized by Innovation, Science and Economic Development Canada for wireless and terminal testing (ISED), CAB identifier is IL1001, ISED# number 2186A; Certified by VCCI, Japan (the registration numbers are R-10808 for OATS, R-1082 for anechoic chamber, G-10869 for RE measurements above 1 GHz, C-10845 for conducted emissions site and T-11606 for conducted emissions at telecommunication ports).

The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing, environmental simulation and calibration (for exact scope please refer to Certificate No. 839.01, 839.03 and 839.04).

Address: P.O. Box 23, Binyamina 3055001, Israel
Telephone: +972 4628 8001
Fax: +972 4628 8277
e-mail: mail@hermonlabs.com
website: www.hermonlabs.com

Person for contact: Mr. M. Nikishin, EMC and radio group leader

10 APPENDIX B Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0446	Antenna, Loop, Active, 10 (9) kHz - 30 MHz	EMCO	6502	2857	24-Feb-19	24-Feb-20
3818	PSA Series Spectrum Analyzer, 3 Hz- 44 GHz	Agilent Technologies	E4446A	MY48250288	24-Apr-19	24-Apr-20
3903	Microwave Cable Assembly, 40.0 GHz, 1.5 m, SMA/SMA	Huber-Suhner	SUCOFLEX 102A	1226/2A	07-Apr-19	07-Apr-20
4135	Shield Box	TESCOM CO., LTD	TC-5916A	5916A000136	24-Apr-19	24-Apr-20
4360	EMI Test Receiver, 20 Hz to 40 GHz	Rohde & Schwarz	ESU40	100322	31-Dec-18	31-Dec-19
4933	Active Horn Antenna, 1 GHz to 18 GHz	COM-POWER CORPORATION	AHA-118	701046	06-Jan-19	06-Jan-20
5288	Trilog Antenna, 25 MHz - 8 GHz, 100W	Frankonia	ALX-8000E	00809	08-Feb-19	08-Feb-22
5405	RF cable, 18 GHz, N-N, 6 m	Huber-Suhner	SF118/11N(x2)	500023/118	01-Aug-18	01-Aug-19

11 APPENDIX C Test equipment correction factors

HL 0446: Active Loop Antenna
EMCO, model: 6502, s/n 2857

Frequency,	Measured antenna factor, dBS/m	Measurement uncertainty, dB
10	-33.4	±1.0
20	-37.8	±1.0
50	-40.5	±1.0
75	-41.0	±1.0
100	-41.2	±1.0
150	-41.2	±1.0
250	-41.1	±1.0
500	-41.2	±1.0
750	-41.3	±1.0
1000	-41.3	±1.0

Frequency,	Measured antenna factor, dBS/m	Measurement uncertainty, dB
2000	-41.4	±1.0
3000	-41.4	±1.0
4000	-41.5	±1.0
5000	-41.5	±1.0
10000	-41.7	±1.0
15000	-42.1	±1.0
20000	-42.7	±1.0
25000	-44.2	±1.0
30000	-45.8	±1.0

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ A/m.

HL 4933: Active Horn Antenna
COM-POWER CORPORATION, model: AHA-118, s/n 701046

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
1000	-16.1
1500	-15.1
2000	-10.9
2500	-11.9
3000	-11.1
3500	-10.6
4000	-8.6
4500	-8.3
5000	-5.9
5500	-5.7
6000	-3.3
6500	-4.0
7000	-2.2
7500	-1.7
8000	1.1
8500	-0.8
9000	-1.5
9500	-0.2

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
10000	1.8
10500	1.0
11000	0.3
11500	-0.5
12000	3.1
12500	1.4
13000	-0.3
13500	-0.4
14000	2.5
14500	2.2
15000	1.9
15500	0.5
16000	2.1
16500	1.2
17000	0.6
17500	3.1
18000	4.2

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.

HL 5288: Trilog Antenna
Frankonia, model: ALX-8000E, s/n: 00809

Frequency, MHz	Antenna factor, dB/m
30	14.96
35	15.33
40	16.37
45	17.56
50	17.95
60	16.87
70	13.22
80	10.56
90	13.61
100	15.46
120	14.03
140	12.23

Frequency, MHz	Antenna factor, dB/m
160	12.67
180	13.34
200	15.40
250	16.42
300	17.28
400	19.98
500	21.11
600	22.90
700	24.13
800	25.25
900	26.35
1000	27.18

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.

HL 5405: RF cable
Huber-Suhner, SF118/11N(x2), s/n 500023/118

Set / Applied, MHz	Measured, dB	Uncertainty, dB
0.1	0.01	±0.07
50	0.23	±0.07
100	0.32	±0.07
200	0.45	±0.08
300	0.55	±0.08
400	0.64	±0.08
500	0.71	±0.08
600	0.78	±0.08
700	0.85	±0.08
800	0.91	±0.08
900	0.97	±0.08
1000	1.02	±0.08
1100	1.07	±0.08
1200	1.12	±0.08
1300	1.16	±0.08
1400	1.21	±0.08
1500	1.25	±0.08
1600	1.30	±0.08
1700	1.34	±0.08
1800	1.38	±0.08
1900	1.42	±0.08
2000	1.47	±0.08
2500	1.64	±0.10
3000	1.81	±0.10
3500	1.97	±0.10
4000	2.11	±0.10
4500	2.25	±0.10

Set / Applied, MHz	Measured, dB	Uncertainty, dB
5000	2.38	±0.10
5500	2.48	±0.10
6000	2.59	±0.10
6500	2.72	±0.10
7000	2.84	±0.13
7500	2.97	±0.13
8000	3.08	±0.13
8500	3.21	±0.13
9000	3.31	±0.13
9500	3.42	±0.13
10000	3.52	±0.13
10500	3.62	±0.13
11000	3.72	±0.13
11500	3.81	±0.13
12000	3.93	±0.13
12500	4.00	±0.18
13000	4.09	±0.18
13500	4.18	±0.18
14000	4.26	±0.18
14500	4.35	±0.18
15000	4.45	±0.22
15500	4.54	±0.22
16000	4.61	±0.22
16500	4.69	±0.22
17000	4.78	±0.22
17500	4.84	±0.22
18000	4.92	±0.27

12 APPENDIX D Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 10 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.0 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.1 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 5.5 dB Biconical antenna: ± 5.5 dB Log periodic antenna: ± 5.6 dB Double ridged horn antenna: ± 5.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Occupied bandwidth	± 8.0 %

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

13 APPENDIX E Specification references

FCC 47CFR part 15:2017	Radio Frequency Devices
ICES-003:2016, Issue 6	Information Technology Equipment (ITE) - Limits and methods of measurement
ANSI C63.2:2016	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications
ANSI C63.4:2014	American National Standard for Methods of Measurement 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 of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-210 Issue 9:2016	Licence-Exempt Radio Apparatus: Category I Equipment
RSS-Gen Issue 5:2018	General Requirements for Compliance of Radio Apparatus
CISPR 16-1-1:2015	Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus

14 APPENDIX F Abbreviations and acronyms

A	ampere	LISN	line impedance stabilization network
AC	alternating current	m	meter
A/m	ampere per meter	MHz	megahertz
AM	amplitude modulation	MIL	military
ASSL	abnormal steady state limits	mm	millimeter
ATP	acceptance test procedure	ms	millisecond
AVRG	average (detector)	μF	microfarad
BB	broad band	μs	microsecond
cm	centimeter	NA	not applicable
dB	decibel	NB	narrow band
dBm	decibel referred to one milliwatt	NP	normal performance
dB(μA)	decibel referred to one microampere	NSSL	normal steady state limits
dBμV	decibel referred to one microvolt	NT	not tested
dBμV/m	decibel referred to one microvolt per meter	OATS	open area test site
DC	direct current	Ω	Ohm
EMI	electromagnetic interference	QP	quasi-peak
ESS	environmental stress screening	PBIT	periodic built in test
ESSL	emergency steady state limits	PM	pulse modulation
EUT	equipment under test	PS	power supply
FTE	functional test equipment	RE	radiated emission
GHz	gigahertz	RF	radio frequency
GND	ground	rms	root mean square
H	height	s	second
HL	Hermon laboratories	STD	standard
Hz	hertz	TBD	to be defined
k	kilo	V	volt
kHz	kilohertz	VA	volt-ampere
kV	kilovolt	W	width
L	length	W	watt

END OF HL REPORT

15 APPENDIX G Manufacturer declaration of periodic operation



Declaration about periodic operation

We
Name: Essence Security International (E.S.I) Ltd
Address: Tal Cohen
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City: Herzliya 4612001
Country: Israel

The ES700EPAJ / ES700EPPJ is compliant with periodic operation requirements, listed below:

1. The EPAJ/EPPJ device does not allow continuous transmitting (such as voice, video and RC).
2. The EPAJ/EPPJ is not manually operated. Its transmission pattern include up to six re-tries (in case of no response). The patterns of these re-tries are built as follows:
 - a. Up to 8 mSec transmission period
 - b. Minimum of 100 mSec reception period (break/polling)
3. These transmissions occur upon intrusion only – none periodical in concept. Therefore, no manual activation/deactivation mechanism is necessary.
4. Since there is no periodical behavior except supervision transmissions and information signals, there are no predetermined intervals of any kind included in its algorithms.

Name: Tal Cohen
Function: Certification Manager
Signature:



END OF DOCUMENT