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Test report

317747-3TRFEMC

Date of issue: November 22, 2016

Applicant:

Nanoptix Inc.

Product:

PayCheck NextGen

Model:

950050

Product variant:

PayCheck Desktop II

Model variant:

950051

Specifications:

EN 55032: 2012/AC:2013

Electromagnetic compatibility of multimedia equipment – Emission requirements

Lab and test locations

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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.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 1 Report summary

1.1 Test specifications

EN 55032: 2012/AC:2013	Electromagnetic compatibility of multimedia equipment – Emission requirements

1.2 Exclusions

None

1.3 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

1.4 Test report revision history

Table 1.4-1: *Test report revision history*

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

Notes: None

Section 2 Summary of test results

2.1 Radiated emissions

Table 2.1-1: *Requirements for radiated emissions at the frequencies up to 1 GHz for Class A equipment*

Table clause	Frequency range [MHz]	Measurement Distance [m]	Measurement Detector type/ bandwidth	Class A limits dB(µV/m) OATS/SAC (See table A.1[1])	Verdict
A2.1	30 – 230 230 – 1000	10	Quasi Peak/120 kHz	40 47	Not applicable
A2.2	30 – 230 230 – 1000	3	Quasi Peak/120 kHz	50 57	Not applicable

Notes: OATS – Open Area Test Site, SAC – Semi Anechoic Chamber

[1] With reference to EN 55032.

Table 2.1-2: *Requirements for radiated emissions at the frequencies above 1 GHz for Class A equipment*

Table clause	Frequency range [MHz]	Measurement Distance [m]	Measurement Detector type/ bandwidth	Class A limits dB(µV/m) FSOATS (See table A.1[1])	Verdict
A3.1	1000 – 3000 3000 – 6000	3	CAverage/1 MHz	56 60	Not applicable
A3.2	1000 – 3000 3000 – 6000	3	Peak/1 MHz	76 80	Not applicable

Notes: FSOATS – Free Space Open Area Test Site

[1] With reference to EN 55032.

Table 2.1-3: *Requirements for radiated emissions at the frequencies up to 1 GHz for Class B equipment*

Table clause	Frequency range [MHz]	Measurement Distance [m]	Measurement Detector type/ bandwidth	Class B limits dB(µV/m) OATS/SAC (See table A.1[1])	Verdict
A4.1	30 – 230 230 – 1000	10	Quasi Peak/120 kHz	30 37	Pass
A4.2	30 – 230 230 – 1000	3	Quasi Peak/120 kHz	40 47	Pass

Notes: OATS – Open Area Test Site, SAC – Semi Anechoic Chamber

[1] With reference to EN 55032.

Table 2.1-4: *Requirements for radiated emissions at the frequencies above 1 GHz for Class B equipment*

Table clause	Frequency range [MHz]	Measurement Distance [m]	Measurement Detector type/ bandwidth	Class B limits dB(µV/m) FSOATS (See table A.1[1])	Verdict
A5.1	1000 – 3000 3000 – 6000	3	CAverage/1 MHz	50 54	Pass
A5.2	1000 – 3000 3000 – 6000	3	Peak/1 MHz	70 74	Pass

Notes: FSOATS – Free Space Open Area Test Site

[1] With reference to EN 55032.

2.1 Radiated emissions, continued

Table 2.1-5: *Requirements for radiated emissions from FM receivers*

Table clause	Frequency range [MHz]	Measurement		Class B limits dB(µV/m)		Verdict
		Distance [m]	Detector type/ bandwidth	Fundamental	Harmonics	
				OATS/SAC (See table A.1[1])		
A6.1	30 – 230	10	Quasi Peak/120 kHz	50	42	Not applicable
	230 – 300				42	
	300 – 1000				46	
A6.2	30 – 230	3	Quasi Peak/120 kHz	60	52	Not applicable
	230 – 300				52	
	300 – 1000				56	

Notes: These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the local oscillator. Signals at all other frequencies shall be compliant with the limits given in Table A.4[1].

[1] With reference to EN 55032.

2.2 Conducted emissions

Table 2.2-1: *Requirements for conducted emissions from the AC mains power ports of Class A equipment*

Table clause	Frequency range [MHz]	Coupling device (see Table A.7 of CISPR32)	Detector type/ bandwidth	Class A limits dB(µV/m)	Verdict
A8.1	0.15 – 0.5	AMN	Quasi Peak/9 kHz	79	Not applicable
	0.5 – 30			73	
A8.2	0.15 – 0.5	AMN	CAverage/9 kHz	66	Not applicable
	0.5 – 30			60	

Notes: – Apply A8.1 or A8.2 across the entire frequency range.

Table 2.2-2: *Requirements for conducted emissions from the AC mains power ports of Class B equipment*

Table clause	Frequency range [MHz]	Coupling device (see Table A.7 of CISPR32)	Detector type/ bandwidth	Class B limits dB(µV/m)	Verdict
A9.1	0.15 – 0.5	AMN	Quasi Peak/9 kHz	66 – 56	Pass
	0.5 – 5			56	
	5 – 30			60	
A9.2	0.15 – 0.5	AMN	CAverage/9 kHz	56 – 46	Pass
	0.5 – 5			46	
	5 – 30			50	

Notes: – Apply A9.1 or A9.2 across the entire frequency range.

2.2 Conducted emissions, continued

Table 2.2-3: *Requirements for asymmetric mode conducted emissions from class A equipment*

Table clause	Frequency range [MHz]	Coupling device (see Table A.7 of CISPR32)	Detector type/ bandwidth	Class A voltage limits dB(µV)	Class A current limits dB(µA)	Verdict
A10.1	0.15 – 0.5 0.5 – 30	AAN	Quasi Peak/9 kHz	97 – 87 87	n/a	Not applicable
	0.15 – 0.5 5 – 30	AAN	CAverage/9 kHz	84 – 74 74	n/a	
A10.2	0.15 – 0.5 0.5 – 30	CVP and current probe	Quasi Peak/9 kHz	97 – 87 87	53 – 43 43	Not applicable
	0.15 – 0.5 5 – 30	CVP and current probe	CAverage/9 kHz	84 – 74 74	40 – 30 30	
A10.3	0.15 – 0.5 0.5 – 30	Current probe	Quasi Peak/9 kHz	n/a	53 – 43 43	Not applicable
	0.15 – 0.5 5 – 30	Current probe	CAverage/9 kHz	n/a	40 – 30 30	

Notes:
- The choice of coupling device and measurement procedure is defined in Annex C of EN 55032;
- AC Mains ports that also have the function of a wired network port shall meet the limits given in Table A.8 of EN 55032.
- The test shall cover the entire frequency range.
- The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to Table C.1 of EN 55032 for applicability.
- Testing is required at only one EUT supply voltage and frequency.
- Applicable to ports listed above and intended to connect to cables longer than 3 m.
- Applicable to: wired network ports, optical fibre ports with metallic shield or tension members and antenna ports.

Section 3 Equipment under test (EUT) details

3.1 Applicant and Manufacturer

Company name	Nanoptix Inc.
Address	699 Champlain St., Dieppe, New Brunswick, Canada, E1A 7P1

3.2 Sample information

Receipt date	September 23, 2016
Nemko sample ID number	133-002513
Test start date	October 24, 2016
Test end date	October 24, 2016

3.3 EUT information

Product name (s)	PayCheck NextGen
Model (s)	950050
Serial number	NG00286
Product name Variant	PayCheck Desktop II
Model Variant	950051
Power requirements	24 V_{DC} @ 2.4 Amps (Via 100-240 V_{AC} power supply)
Description/theory of operation	The EUT is a thermal ticket printer. This printer is used in casino game terminal to print tickets used to cash out credits from the game. It can receive print jobs from either USB full speed or RS-232.
Operational frequencies	1GHz internal processor, 400MHz for memory access
Software details	Firmware version is 1.14B

3.4 EUT exercise and monitoring details

The printer was printing a “standard” ticket. Every 6 seconds.

3.5 EUT setup details

Table 3.5-1: *EUT interface ports*

Description	Qty.
RS232 – printer connector	1

Table 3.5-2: *Support equipment*

Description	Brand name	Model/Part number	Serial number	Rev.
Power supply	FSP Group INC	FSP060-RTAAN2	-	-

Table 3.5-3: *Inter-connection cables*

Cable description	From	To	Length (m)
RS232	Host	Network	5

Figure 3.5-1: *Setup diagram*

Section 4 Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

The PayCheck Desktop II, model number 950051 was tested as a representative sample for both models. Customer has stated the EUT uses different plastic enclosure and EUT uses the same firmware. The EUT Is electrically identical.

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5 Test conditions

5.1 Atmospheric 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.

5.2 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 6 Measurement uncertainty

6.1 Uncertainty of measurement

Nemko Canada Inc. has calculated measurement uncertainty and is documented in EMC/MUC/001 "Uncertainty in EMC measurements." Measurement uncertainty was calculated using the methods described in CISPR 16-4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC measurements; as well as described in UKAS LAB34: The expression of Uncertainty in EMC Testing. Measurement uncertainty calculations assume a coverage factor of K=2 with 95% certainty.

Section 7 Terms and definitions

7.1 Equipment classification

Equipment classification	Equipment intended primarily for use in a residential environment shall meet the Class B limits. All other equipment shall comply with the Class A limits. Broadcast receiver equipment is class B equipment. The user documentation and/or manual shall contain details of any special measures required to be taken by the purchaser or user to ensure EMC compliance of the EUT with the requirements of this publication (EN 55032). One example would be the need to use shielded or special cables. Class A equipment shall have the following warning in the instructions for use, to inform the user of the risk of operating this equipment in a residential environment: Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

7.2 General definitions

7.2.1 Equipment type

Multimedia Equipment (MME)	Equipment that is information technology equipment, audio equipment, video equipment, broadcast receiver equipment, entertainment lighting control equipment or combinations of these.
Information technology equipment [ITE]	Equipment having a primary function of either (or a combination of) entry, storage, display, retrieval, transmission, processing, switching, or control of data and/or telecommunication messages and which may be equipped with one or more ports typically for information transfer. - Examples include data processing equipment, office machines, electronic business equipment and telecommunication equipment.
Audio equipment	Equipment which has a primary function of either (or a combination of) generation, input, storage, play, retrieval, transmission, reception, amplification, processing, switching or control of audio signals
Video equipment	Equipment which has a primary function of either (or a combination of) generation, input, storage, display, play, retrieval, transmission, reception, amplification, processing, switching, or control of video signals.
Broadcast receiver equipment	Equipment containing a tuner that is intended for the reception of broadcast services - These broadcast services are typically television and radio services, including terrestrial broadcast, satellite broadcast and/or cable transmission.
Entertainment lighting control equipment	Equipment generating or processing electrical signals for controlling the intensity, color, nature or direction of the light from a luminaire, where the intention is to create artistic effects in theatrical, televisual or musical productions and visual presentations.

7.2 General definitions, continued

7.2.2 Port type

AC mains power port	Port used to connect to the mains supply network - Equipment with a DC power port which is powered by a dedicated AC/DC power converter is defined as AC mains powered equipment
Antenna port	Port, other than a broadcast receiver tuner port (3.1.8), for connection of an antenna used for intentional transmission and/or reception of radiated RF energy.
Broadcast receiver tuner port	Port intended for the reception of a modulated RF signal carrying terrestrial, satellite and/or cable transmissions of audio and/or video broadcast and similar services - This port may be connected to an antenna, a cable distribution system, a VCR or similar device.
DC network power port	Port, not powered by a dedicated AC/DC power converter and not supporting communication, that connects to a DC supply network. - Equipment with a DC power port which is powered by a dedicated AC/DC power converter is considered to be AC mains powered equipment. - DC power ports supporting communications are considered to be wired networks ports, for example Ethernet ports which include Power Over Ethernet (POE).
Enclosure port	Physical boundary of the EUT through which electromagnetic fields may radiate.
Optical fibre port	Port at which an optical fibre is connected to an equipment.
RF modulator output port	Port intended to be connected to a broadcast receiver tuner port in order to transmit a signal to the broadcast receiver.
Signal/control port	Port intended for the interconnection of components of an equipment under test, or between an equipment under test and local associated equipment and used in accordance with relevant functional specifications (for example for the maximum length of cable connected to it) - Examples include RS-232, Universal Serial Bus (USB), High-Definition Multimedia Interface (HDMI), IEEE Standard 1394 (“Fire Wire”)
Wired network port	Point of connection for voice, data and signaling transfers intended to interconnect widely-dispersed systems by direct connection to a single-user of multi-user communication network (for example CATV, PSTN, ISDN, xDSL, LAN and similar networks) - These ports may support screened or unscreened cables and may also carry AC or DC power where this is an integral part of the telecommunication specification.

Section 8 Testing data

8.1 Radiated emissions

8.1.1 References

CISPR 32: 2015

8.1.2 Test summary

Verdict	Pass		
Test date	October 24, 2016	Temperature	23 °C
Test engineer	Kevin Rose	Air pressure	1005 mbar
Test location	Ottawa	Relative humidity	32 %

8.1.3 Notes

- The top six emissions within 10 dB of the limit have been recorded for each detector type as required by the standard.
- Where there is a step in the relevant limit, the lower value was applied at the transition frequency.
- The highest operating frequency of the EUT as provided by the client was 1000 MHz.
- The spectrum was scanned according to the EUT highest operating frequency according to ***Table 8.1-1.***

Table 8.1-1: *Frequency range*

Highest internal frequency [F_X]	Highest measured frequency
$F_X \leq 108$ MHz	1 GHz
108 MHz < $F_X \leq 500$ MHz	2 GHz
500 MHz < $F_X \leq 1$ GHz	5 GHz
$F_X > 1$ GHz	$5 \times F_X$ up to a maximum of 6 GHz

Notes: Highest internal frequency [F_X] – highest fundamental frequency generated or used within the EUT or highest frequency at which it operates. This includes frequencies which are solely used within an integrated circuit.
For FM and TV broadcast receivers F_X is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

8.1.4 Setup details

Port under test	Enclosure Port
EUT setup configuration	Table top
Test facility	3 m Semi anechoic chamber
Measuring distance	3 m
Antenna height variation	1–4 m
Turn table position	0–360°
Measurement details	A preview measurement was generated with receiver in continuous scan or sweep mode while the EUT was rotated and antenna adjusted to maximize radiated emission. Emissions detected within 10 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

Receiver/spectrum analyzer settings for frequencies below 1 GHz:

Resolution bandwidth	120 kHz
Video bandwidth	300 kHz
Detector mode	– Peak (Preview measurement) – Quasi-peak (Final measurement)
Trace mode	Max Hold
Measurement time	– 100 ms (Peak preview measurement) – 1000 ms (Quasi-peak final measurement)

Receiver/spectrum analyzer settings for frequencies above 1 GHz:

Resolution bandwidth	1 MHz
Video bandwidth	3 MHz
Detector mode	Peak (Preview measurement) Peak and CAverage (Final measurement)
Trace mode	Max Hold
Measurement time	– 100 ms (Peak preview measurement) – 100 ms (Peak and CAverage final measurement)

Table 8.1-2: *Radiated emissions equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
3 m EMI test chamber	TDK	SAC-3	FA002047	1 year	Dec. 01/16
Flush mount turntable	Sunol	FM2022	FA002082	—	NCR
Controller	Sunol	SC104V	FA002060	—	NCR
Antenna mast	Sunol	TLT2	FA002061	—	NCR
AC Power source	California Instruments	3001i	FA001021	1 year	Sept. 08/17
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1 year	Jan. 07/17
Bilog antenna (20–3000 MHz)	Sunol	JB3	FA002108	1 year	Apr. 28/17
Pre-amplifier (1–18 GHz)	JCA	JCA118-503	FA002091	1 year	April 26/17
Horn antenna (1–18 GHz)	EMCO	3115	FA000825	1 year	Apr. 26/17
50 Ω coax cable	Huber + Suhner	None	FA002074	1 year	April 26/17
50 Ω coax cable	Huber + Suhner	None	FA002830	1 year	July 29/17

Notes: NCR - no calibration required

Table 8.1-3: *Radiated emissions test software details*

Manufacturer of Software	Details
Rhode & Schwarz	EMC32, Software for EMC Measurements, Version 9.26.01

Notes: None

8.1.5 Test data

NEX--317747 RE Scan 30-1000 MHz
Preview Result 1-PK+
EN55032 - Class A 3m Q-Peak Limit
Final_Result QPK

The spectral plot is a summation of a vertical and horizontal scan. The spectral scan has been corrected with the associated transducer factors (i.e. antenna factors, cable loss, amplifier gains, and attenuators.

Figure 8.1-1: *Radiated emissions spectral plot (30 to 1000 MHz)*

NEX-317747 1-6 GHz CE
Preview Result 1-PK+
CISPR 22 - Class A 3m Average Limit
CISPR 22 - Class A 3m Peak Limit
Final_Result PK+
Final_Result CAV

The spectral plot is a summation of a vertical and horizontal scan. The spectral scan has been corrected with the associated transducer factors (i.e. antenna factors, cable loss, amplifier gains, and attenuators.

Figure 8.1-2: *Radiated emissions spectral plot (1-6 GHz)*

8.1.5 Test data, continued

Table 8.1-4: *Radiated emissions (Quasi-Peak) results*

Frequency (MHz)	Quasi-Peak field strength[1 and 3] (dBµV/m)	Measurement time (ms)	Bandwidth (kHz)	Antenna height (cm)	Pol. (V/H)	Turn table position (°)	Correction factor[2] (dB)	Margin (dB)	3 m Quasi-Peak limit [3] (dBµV/m)
36.12	26.47	1000	120	165	V	199	18.9	23.53	50
197.55	40.26	1000	120	229	H	149	14.3	9.74	50
203.01	41.5	1000	120	213	H	156	14.1	8.50	50
203.79	40.97	1000	120	227	H	166	14.0	9.03	50
204.57	40.25	1000	120	211	H	170	13.8	9.75	50
205.35	38.91	1000	120	204	H	176	13.7	11.09	50
206.16	39.58	1000	120	98	V	267	13.5	10.42	50
336	35.23	1000	120	103	H	218	16.8	21.77	57
432	44.34	1000	120	150	V	115	19.3	12.66	57
528	44.54	1000	120	173	H	73	20.9	12.46	57
624.03	40.53	1000	120	145	H	19	22.4	16.47	57
672	44.16	1000	120	267	H	271	23.1	12.84	57
720	46.92	1000	120	116	H	271	23.6	10.08	57
816.03	38.59	1000	120	113	H	93	25	18.41	57
912	45.46	1000	120	171	V	26	25.8	11.54	57

Notes:
[1] Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)
[2] Correction factor = antenna factor ACF (dB) + cable loss (dB)
[3] The maximum measured value observed over a period of 15 seconds was recorded.

Sample calculation: 38.9 dBµV/m (field strength) = 27.9 dBµV (receiver reading) + 11.0 dB (Correction factor)

8.1.6 Setup photos

Figure 8.1-3: *Radiated emissions setup photo*

Figure 8.1-4: *Radiated emissions setup photo*

8.2 Conducted emissions – from AC mains power ports

8.2.1 References

CISPR 32: 2015

8.2.2 Test summary

Verdict	Pass		
Test date	October 24, 2016	Temperature	23 °C
Test engineer	Kevin Rose	Air pressure	1005 mbar
Test location	Ottawa	Relative humidity	32 %

8.2.3 Notes

- The top six emissions within 10 dB of the limit have been recorded for each detector type as required by the standard.
- Where there is a step in the relevant limit, the lower value was applied at the transition frequency.
- Equipment with a DC power port powered by a dedicated AC/DC power converter is considered to be AC mains powered equipment and was tested with a power converter. Where the power converter was provided by the manufacturer, the provided converter was used.

8.2.4 Setup details

Port under test – Coupling device	AC Mains [AMN]
EUT setup configuration	Table top
Measurement details	A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 10 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

Receiver settings:

Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Detector mode	– Peak and Average (Preview measurement) – Quasi-peak and CAverage (Final measurement)
Trace mode	Max Hold
Measurement time	– 100 ms (Peak and Average preview measurement) – 1000 ms (Quasi-peak final measurement) – 160 ms (CAverage final measurement)

Table 8.2-1: *Conducted emissions – from AC mains power ports equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1 year	Jan. 07/17
AC Power source	Chenwa	2700M-10k	FA002716	—	VOU
LISN	Rohde & Schwarz	ENV216	FA002023	1 year	Mar. 08/17

Notes: VOU - verify on use

Table 8.2-2: *Conducted emissions – from AC mains power ports test software details*

Manufacturer of Software	Details
Rhode & Schwarz	EMC32, Software for EMC Measurements, Version 9.26.01

Notes: None

8.2.5 Test data

NEX-317747 CE Scan 230 Vac 50 Hz
Preview Result 2-AVG
Preview Result 1-PK+
CISPR 22 Mains Q-Peak Class B Limit
CISPR 22 Mains Average Class B Limit
Final_Result QPK
Final_Result CAV

The spectral plot has been corrected with transducer factors. (i.e. cable loss, LISN factors, and attenuators)

Figure 8.2-1: *Conducted emissions – from AC mains power ports spectral plot on phase line*

NEX-317747 CE Scan 230 Vac 50 Hz Neutral
Preview Result 2-AVG
Preview Result 1-PK+
CISPR 22 Mains Q-Peak Class B Limit
CISPR 22 Mains Average Class B Limit
Final_Result QPK
Final_Result CAV

The spectral plot has been corrected with transducer factors. (i.e. cable loss, LISN factors, and attenuators)

Figure 8.2-2: *Conducted emissions – from AC mains power ports spectral plot on neutral line*

8.2.5 Test data, continued

Table 8.2-3: *Conducted emissions – from AC mains power ports (Quasi-Peak) results*

Frequency (MHz)	Peak result[1 and 3] (dBµV)	Measurement time (ms)	Bandwidth (kHz)	Filter	Conductor	Correction factor[2] (dB)	Margin (dB)	Quasi-Peak limit (dBµV)
0.150000	39.6	100	9	ON	N	9.9	26.4	66
0.550500	40.0	100	9	ON	N	10.0	20.0	60
5.871750	30.0	100	9	ON	N	10.0	30.0	60
9.885750	37.3	100	9	ON	N	10.2	22.7	60
14.988250	44.2	100	9	ON	N	10.3	15.8	60
15.053500	41.8	100	9	ON	N	10.3	18.2	60
17.533000	42.6	100	9	ON	N	10.4	17.4	60
23.290750	46.5	100	9	ON	N	10.7	13.5	60
0.150000	44.1	100	9	ON	P	9.9	15.9	60
5.878500	35.1	100	9	ON	P	10.0	24.9	60
6.337500	34.5	100	9	ON	P	10.1	25.5	60
8.583000	31.1	100	9	ON	P	10.2	28.9	60
9.105000	31.3	100	9	ON	P	10.2	28.7	60
10.407250	25.3	100	9	ON	P	10.2	34.7	60
23.315500	33.3	100	9	ON	P	10.7	26.7	60
24.937750	33.4	100	9	ON	P	10.7	26.6	60
25.851250	34.8	100	9	ON	P	10.7	25.2	60

Notes: [1] Result (dBµV) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)
[2] Correction factor (dB) = LISN factor IL (dB) + cable loss (dB) + attenuator (dB)
[3] The maximum measured value observed over a period of 15 seconds was recorded.

Sample calculation: 30 dBµV (result) = 20 dBµV (receiver reading) + 10 dB (Correction factor)

Table 8.2-4: *Conducted emissions – from AC mains power ports (CAverage) results*

Frequency (MHz)	Average result[1 and 3] (dBµV)	Measurement time (ms)	Bandwidth (kHz)	Filter	Conductor	Correction factor[2] (dB)	Margin (dB)	CAverage limit (dBµV)
0.150000	24.7	160	9	ON	N	9.9	31.3	56
0.550500	24.4	160	9	ON	N	10.0	25.6	50
5.871750	19.3	160	9	ON	N	10.0	30.7	50
9.885750	22.0	160	9	ON	N	10.2	28.0	50
14.988250	23.5	160	9	ON	N	10.3	26.5	50
15.053500	21.6	160	9	ON	N	10.3	28.4	50
17.533000	23.9	160	9	ON	N	10.4	26.1	50
23.290750	27.8	160	9	ON	N	10.7	22.2	50
0.150000	24.8	160	9	ON	P	9.9	31.2	56
5.878500	18.0	160	9	ON	P	10.0	32.0	50
6.337500	19.2	160	9	ON	P	10.1	30.8	50
8.583000	18.7	160	9	ON	P	10.2	31.3	50
9.105000	16.2	160	9	ON	P	10.2	33.8	50
10.407250	12.9	160	9	ON	P	10.2	37.1	50
23.315500	18.6	160	9	ON	P	10.7	31.4	50
24.937750	19.0	160	9	ON	P	10.7	31.0	50
25.851250	20.2	160	9	ON	P	10.7	29.8	50

Notes: [1] Result (dBµV) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)
[2] Correction factor (dB) = LISN factor IL (dB) + cable loss (dB) + attenuator (dB)
[3] The maximum measured value observed over a period of 15 seconds was recorded.

Sample calculation: 30 dBµV (result) = 20 dBµV (receiver reading) + 10 dB (Correction factor)

8.2.5 Setup photos

Figure 8.2-3: *Conducted emissions – from AC mains power ports setup photo*

Figure 8.2-4: *Conducted emissions – from AC mains power ports setup photo*

Section 9 EUT photos

9.1 External photos

Figure 9.1-1: *Front view photo*

Figure 9.1-2: *Rear view photo*

Figure 9.1-3: *Side view photo*