

EMC VERIFICATION SUMMARY
Pursuant To EMC Directive 2014/30/EU

Report No.:	19051268HKG-002
Applicant:	Lexibook Limited Unit 8-9, 4th Floor, Kenning Industrial Building, 19 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong.
Equipment Under Test (EUT):	
Product Description:	Portable DVD Player
Model:	DVDP6
Sample Receipt Date:	24 May 2019
Test Conducted Date:	24 May 2019 to 30 May 2019
Issue Date:	12 Jul 2019
Test Site Location:	1. For Radiated Emission Test: Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. 2. For Other Test: 2 nd Floor, Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Relevant Standard(s):	EN 55032:2012 EN 55032:2015 EN 61000-3-2:2014 EN 61000-3-3:2013 EN 55020:2007+A11+A12
Conclusion:	Test was conducted by client submitted sample. The submitted sample as received complied with the EMC requirement.

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Prepared and Checked by:

Approved by:

Signed on File

Lai Siu Ming, Henry/sy
Engineer


Digitally signed
by Terry Chan
Location: Intertek
Testing Services
Hong Kong Ltd.

Chan Chi Hung, Terry
Manager

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TEST REPORT

EMC RESULTS CONCLUSION (WITH JUSTIFICATION)

RE: EMC Testing Pursuant to EMC Directive 2014/30/EU Performed On the
Portable DVD Player,
Model: DVDP6

We tested the Portable DVD Player, Model: DVDP6, to determine if it was in compliance with the relevant EN standards as marked on the EMC Verification Summary. We found that the unit met the requirement of EN 55032, EN 61000-3-2, EN 61000-3-3 and EN 55020 standards when tested as received.

The production units are required to conform to the initial sample as received when the units are placed on the market.

Standards against which no testing has been conducted of the captioned model and the engineering judgement is stated as follows:

EN 61000-3-2: This product has a power consumption 75W or less under normal operating conditions. It is therefore not likely to produce harmonics above the limits of the standard. The product is deemed to comply with the standard without any measurements.

TEST REPORT

LABORATORY MEASUREMENTS

CONFIGURATION INFORMATION

Equipment Under Test (EUT):	Portable DVD Player
Model:	DVDP6
Serial No.:	Not Labelled
Support Equipment:	Sony 32" LCD TV (Provided by Intertek)
Cables:	1. 1 x Earphone cable with length of 1.2 meter long (Provided by Applicant) 2. 1 x AV Out cable with length of 1.2 meter long (Provided by Intertek)
Adaptor:	N/A
Rated Voltage:	7.4VDC (1 x 7.4V 1200mAh Lithium battery) and/or 100-240VAC 50/60Hz

TEST REPORT

Performance Criteria for Immunity

The performance criteria are referred to the test standard:

Performance Criteria A

The equipment shall continue to operate as intended during the test. No change of actual operating state (for example change of channel) is allowed as a result of the application of the test. Multifunction equipment shall for each function meet the relevant requirements. Evaluation is carried out for audio and video functions.

Evaluation of Audio Quality

The criterion of compliance with the requirement is a wanted to unwanted audio signal ratio of $\geq 40\text{dB}$ at a wanted audio signal level of 50mW, or at another audio signal level specified by the manufacturer. If the S/N ratio is less than 43dB, the performance criterion for audio assessment is the actual S/N ratio minus 3dB. For AM sound receivers the criterion is $\geq 26\text{dB}$ at 50mW; and is $\geq 26\text{dB}$ at 500mW for the AM/FM car radio or broadcast receiver cards for computers.

Evaluation of Video Quality

In the evaluation of picture interference the wanted test signal produces a standard picture (in the case of video tape equipment on the screen of the test-TV-set) and the unwanted signal produces a degradation of the picture. The degradation may be in a number of forms, such as a superposed pattern, disturbance of synchronization, geometrical distortion, loss of picture contrast, of colour, etc.

The criterion of compliance with the requirement is just perceptible degradation by observation of the picture. The screen shall be observed under normal viewing conditions (brightness 15 lx to 20 lx), at a viewing distance of six times the height of screen.

Performance Criteria B

The equipment shall continue to operate as intended after the test. No loss of function is allowed after the test when the apparatus is used as intended, but failures which are recovered automatically but which cause temporary delay in processing, are permissible. No change of actual operating state for example change of channel or stored data and settings is allowed as result of the application of the test. During the test, degradation of performance is allowed.

TEST REPORT

Radiated Scan

Pursuant to EN 55032 : Class B Emissions Requirement

Model No.: DVD P6
Worst Case Operating Mode: DVD Video Playing

Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-3156	EMI Test Receiver	ROHDE SCHWARZ	ESR26	101398
EW-3281	Spectrum Analyzer	ROHDE SCHWARZ	FSV40	101229
EW-0571	Biconical Antenna	EMCO	3104C	9504-4685
EW-0447	Log Periodic Antenna	EMCO	3146	9905-5218
EW-1133	Double Ridged Guide Antenna	EMCO	3115	0003-6091
EW-2505	14m Double Shield RF Cable (20MHz - 6GHz)	RADIAL	nm / br5d / sma 14m	Nil

Test Data

Polarization	Frequency (MHz)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	74.378	28.4	40	-11.6
H	129.910	26.2	40	-13.9
V	147.006	23.7	40	-16.3
H	167.983	31.2	40	-8.8
H	245.946	33.6	47	-13.4
H	368.530	35.6	47	-11.5

- Notes:
1. Quasi-Peak Detector Data
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30 MHz to 1000 MHz.
 4. Only emissions significantly above equipment noise floor are reported.
 5. Uncertainty: ± 5.3 dB at a level of confidence of 95%.

TEST REPORT

EN 55032 RFI Voltage Test

Model No.: DVDP6
Worst Case Operating Mode: USB Playing

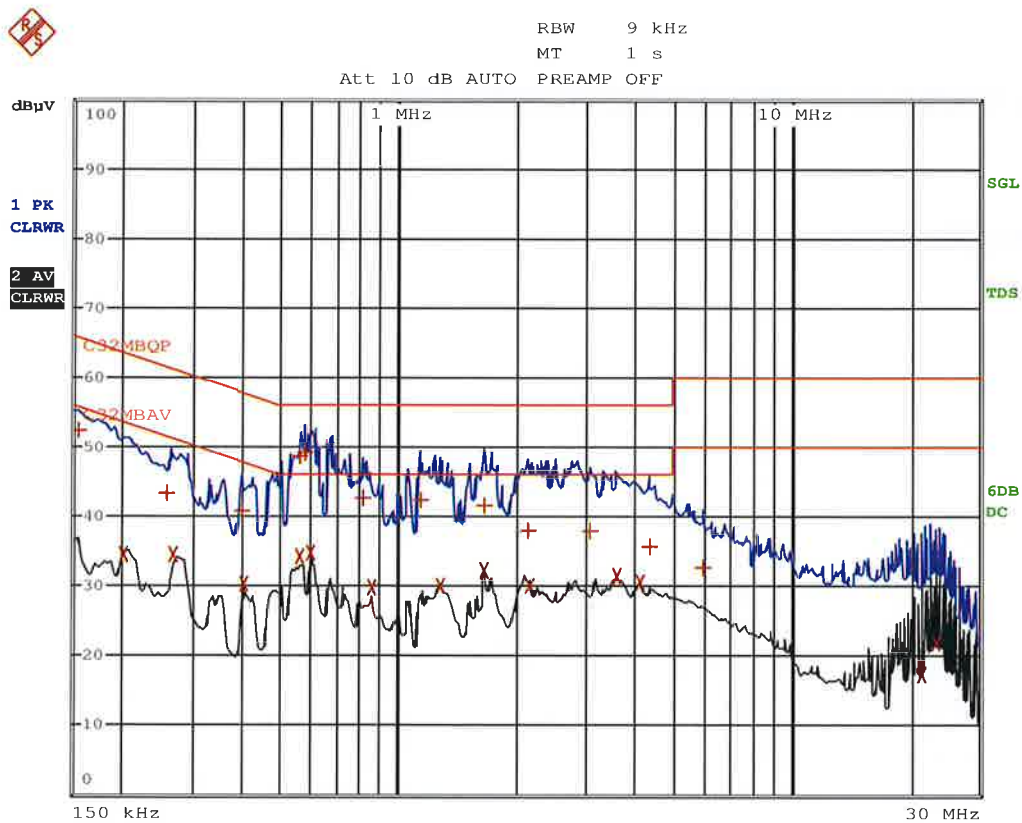
Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.
EW-2500	EMI Test Receiver	R&S	ESCI	100847
EW-2501	Artificial Mains Network	R&S	ENV-216	100483
EW-2452	RF Cable 80cm (RG142)	RADIAL	bnc m st/ 142/ bnc m st 80cm	Nil

- Notes:
1. The following graph and table were recorded for the tests on the mains terminal.
 2. A graph of Ctrl. No.: 3.2.1 consisting of one page and a data table of Ctrl. No.: 3.2.2 and Ctrl. No.: 3.2.3 consisting of two pages are attached.
 3. Uncertainty: $\pm 4.2\text{dB}$ at a level of confidence of 95%.

TEST REPORT

Model No.: DVD P6
Worst Case Operating Mode: USB Playing



19051268HKG-001 (USB Playing with AV out)

Date: 25.MAY.2019 09:47:20

TEST REPORT

Model No.: DVDP6
Worst Case Operating Mode: USB Playing

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	C32MBQP			
Trace2:	C32MBAV			
Trace3:				
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	154.5 kHz	52.32 N		-13.43
2 CISPR Average	204 kHz	34.53 L1		-18.91
1 Quasi Peak	262.5 kHz	43.54 L1		-17.81
2 CISPR Average	271.5 kHz	34.55 N		-16.52
1 Quasi Peak	397.5 kHz	40.81 N		-17.09
2 CISPR Average	402 kHz	30.38 L1		-17.42
2 CISPR Average	559.5 kHz	34.33 L1		-11.66
1 Quasi Peak	564 kHz	48.72 L1		-7.27
1 Quasi Peak	577.5 kHz	49.18 N		-6.81
2 CISPR Average	595.5 kHz	34.77 N		-11.23
1 Quasi Peak	811.5 kHz	42.71 N		-13.28
2 CISPR Average	856.5 kHz	29.81 L1		-16.18
1 Quasi Peak	1.14 MHz	42.38 N		-13.61
2 CISPR Average	1.284 MHz	30.03 N		-15.96
1 Quasi Peak	1.653 MHz	41.55 N		-14.44
2 CISPR Average	1.653 MHz	32.20 L1		-13.79
1 Quasi Peak	2.139 MHz	37.87 N		-18.12
2 CISPR Average	2.1615 MHz	30.01 L1		-15.98
1 Quasi Peak	3.0795 MHz	37.97 L1		-18.02
2 CISPR Average	3.606 MHz	31.25 N		-14.75

19051268HKG-001 (USB Playing with AV out)

Date: 25.MAY.2019 09:46:34

TEST REPORT

Model No.: DVDP6
Worst Case Operating Mode: USB Playing

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	C32MBQP			
Trace2:	C32MBAV			
Trace3:	777			
TRACE	FREQUENCY	LEVEL dB μ V		DELTA LIMIT dB
2 CISPR Average	4.119 MHz	30.67	N	-15.33
1 Quasi Peak	4.344 MHz	35.77	L1	-20.22
1 Quasi Peak	5.991 MHz	32.70	L1	-27.30
2 CISPR Average	21.327 MHz	17.46	L1	-32.53
2 CISPR Average	23.343 MHz	21.89	N	-28.10

19051268HKG-001 (USB Playing with AV out)

Date: 25.MAY.2019 09:47:06

TEST REPORT

EN 61000-3-3 Voltage Fluctuations and Flicker

Used Test Equipment

Equipment	Registration No.	Manufacturer	Model No.	Serial No.
5 kVA Single Phase Harmonics & Flicker Measuring System and Single Phase Coupling Unit	EW-3125	TESEQ	ProfLine 2105-400 and CCN 1000-1	A00550

Test Result

	Result	Limit
$d_{\max}$ (%)	0	4.0
d_c (%)	0	3.300
$d(t) > 3.3\%$ (ms)	0	500
P_{st}	0.064	1.00
P_{lt}	N/A	0.65

TEST REPORT

EN 61000-4-2 Electrostatic Discharge

Test Summary (Pursuant to EN 55020)

Basic Standard:	EN 61000-4-2
Port:	Enclosure
Required Performance Criterion:	B
Level:	±8.0 kV (Air Discharge) ±4.0 kV (Contact Discharge) ±4.0 kV (Indirect Contact Discharge)
Test Mode:	DVD Playing and USB Playing
Test Setup:	Table-Top
Test of Post-installation:	N/A
Time Between Each Discharge:	1 second
Test Point:	Air Discharge: All insulated enclosure and seams All the points where contact discharge cannot be applied
	Contact: All conductive surfaces of the EUT
	HCP: All sides of the EUT
	VCP: Four faces of the EUT

Used Test Equipment

Equipment	Registration No.	Manufacturer	Model No.	Serial No.
ESD Gun	EW-2305	Kikusui	KES4021	LJ004068

TEST REPORT

EN 61000-4-2 Electrostatic Discharge

Test Results

Discharge Type	Applied Voltage	Result (Pursuant to EN 55020, Criterion B)
Contact Discharge	±4kV	OK
Air Discharge	±8kV	OK
Indirect HCP Discharge	±4kV	OK
Indirect VCP Discharge	±4kV	OK

☒ There was no observable degradation in performance.

TEST REPORT

EN 61000-4-3 RF EM Field (Keyed Carrier)

Test Summary (Pursuant to EN 55020)

Basic Standard:	EN 61000-4-3
Port:	Enclosure
Required Performance Criterion:	A
Limit:	3.0 V/m (rms)
Test Modulation:	Duty Cycle 1/8, 217Hz Repetition Frequency
Frequency:	895MHz to 905MHz
Antenna Polarization:	Vertical
Dwell Time:	3s
Frequency Step:	5MHz
Temperature:	23°C
Relative Humidity:	50%
Test Facility:	Full Anechoic Chamber
Type of Antenna:	Log-periodic
Test Distance:	3 meters
Test Mode:	DVD Playing and USB Playing
Test Setup:	Table-Top
Size of the EUT	L: 15.0 (cm) × W: 17.5 (cm) × H: 18.0 (cm)

Used Test Equipment

Equipment	Registration No.	Manufacturer	Model No.	Serial No.
Anechoic Chamber	EW-1568	Universal Shielding Corp.	IEC/EN 61000-4-3	Nil
Trilog Super Broadband Test Antenna 30MHz – 3000MHz	EW-1902	SCHWARZBECK	VULB 9163	9163-199
Signal Generator	EW-2420	AGILENTTECH	E4421B	MY41000509

TEST REPORT

EN 61000-4-3 RF EM Field (Keyed Carrier)

Test Results

Frequency (MHz)	Exposed Side		Field Strength V/m (rms)	Result (Pursuant to EN 55020, Criterion A)
895-905	Left	V	3	OK
895-905	Right	V	3	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator.

☐ EUT was in abnormal operation:
- operation mode was changed from ____ to ____ at ____ V/m.

☐ _____

TEST REPORT

EN 61000-4-4 Electrical Fast Transient/Burst

Test Summary (Pursuant to EN 55020)

Basic Standard:	EN 61000-4-4
Port:	A.C. Power Ports
Required Performance Criterion:	B
Limit:	±1.0kV
Test Duration:	2 minutes
Test Mode:	DVD Playing and USB Playing
Test Setup:	Table-Top
Generator Drive:	Internal
Sequence of Application:	Multiple

Used Test Equipment

Equipment	Registration No.	Manufacturer	Model No.	Serial No.
CE Immunity Compact Tester	EW-2413	TSEQ	6150-05	34566

TEST REPORT

EN 61000-4-4 Electrical Fast Transient/Burst

Test Results

Level	Polarity	Result (Pursuant to EN 55020, Criterion B)
1kV	+	OK
1kV	-	OK



Additional Information



No observable change



EUT stopped operation and could / could not be reset by operator at ____ kV of Burst.



EUT was in abnormal operation:

- Degradation was found in picture quality assessment.
- Noise was observed during the test.



TEST REPORT

EN 55020 Immunity to RF Voltages (Common Mode and Differential Mode)

Test Summary

Port:

Basic Standard:

Required Performance Criterion:

Wanted Signal:

Mains (Common Mode)

Loudspeaker, Headphone, and Audio I/O Terminals
(Differential Mode)

EN 55020

A

☐ FM: 1kHz, 40kHz Deviation FM Signal

☐ TV: Standard TV Signal (Colour Bar with 1kHz Audio)

☐ DTV: Standard TV Signal (Colour Bar with Full Range – 6dB Audio in 1kHz and Small Moving Element)

☐ Audio Playback: Pre-recorded Tape / Disc
(1kHz Audio)

☐ Video Playback: Pre-recorded Tape / Disc (Colour Bar with 1kHz Audio)

☒ Audio Amp.: 1kHz Audio Signal

☐ Video Recording: Colour Bar with 1kHz Audio

Unwanted Signal:

AM at 1kHz at 80% Depth

Unwanted Signal for Mains, Loudspeaker and Headphone Terminals

Frequency MHz	Level dBμV (e.m.f.)
0.15 to 30	130
30 to 100	120
100 to 150	120 - 110(a)
(a) Decreasing linearly with the logarithm of the frequency.	

Unwanted Signal for Audio Input / Output Terminals

Frequency MHz	Level dBμV (e.m.f.)
0.15 to 1.6	80 - 90(a)
1.6 to 20	90 - 120(a)
20 to 100	120
100 to 150	120 - 110(b)
(a) Increasing linearly with the logarithm of the frequency.	
(b) Decreasing linearly with the logarithm of the frequency.	

TEST REPORT

EN 55020 Immunity to RF Voltages (Common Mode and Differential Mode)

Test Results

Test Mode	Type	Result (Pursuant to EN 55020, Criterion A)
USB Playing	Mains, Loudspeaker and Headphone	OK
	Audio Input / Output	OK
DVD Playing	Mains, Loudspeaker and Headphone	OK
	Audio Input / Output	OK

Note: Uncertainty: $\pm 2.5\text{dB}$ at a level of confidence of 95%.

☒ Additional Information

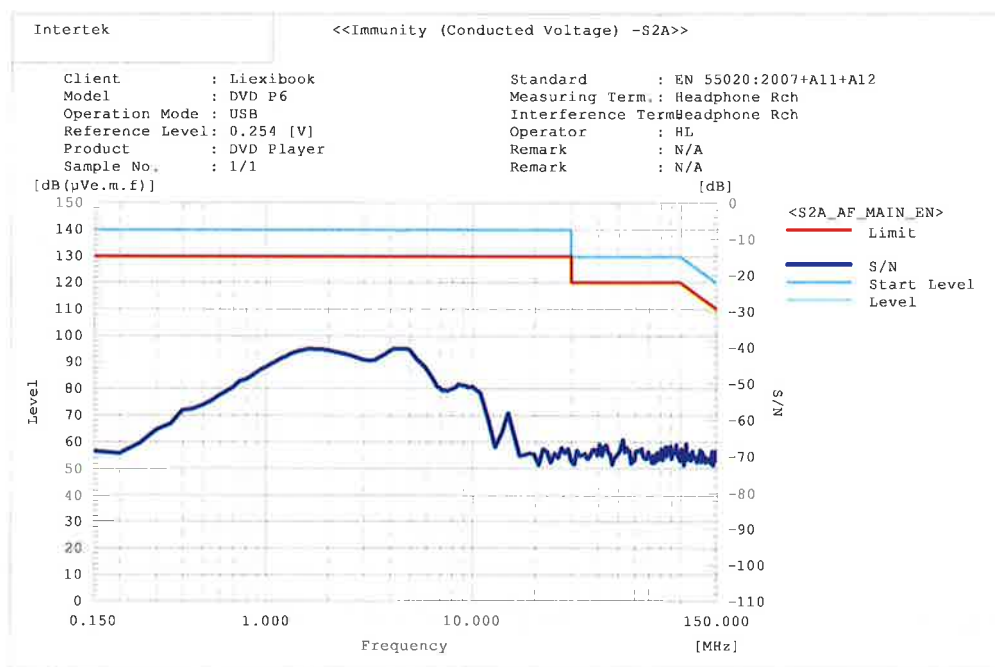
☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at ____ MHz unwanted signal.

☐ EUT was in abnormal operation:
- operation mode was changed from ____ to ____ at ____ MHz.

☐ The interference level need to decrease for keeping the required picture quality / S/N ratio $\geq 40\text{dB}$

TEST REPORT



TEST REPORT

EN 55020 RF EM Field (AM Modulated Carrier)

Test Summary

Port:

Basic Standard:

Required Performance Criterion:

Wanted Signal:

Enclosure

EN 55020

A

- ☐ FM: 1kHz, 40kHz Deviation FM Signal
- ☐ TV: Standard TV Signal (Colour Bar with 1kHz Audio)
- ☐ DTV: Standard TV Signal (Colour Bar with Full Range – 6dB Audio in 1kHz and Small Moving Element)
- ☐ Audio Playback: Pre-recorded Tape / Disc (1kHz Audio)
- ☐ Video Playback: Pre-recorded Tape / Disc (Colour Bar with 1kHz Audio)
- ☒ Audio Amp.: 1kHz Audio Signal
- ☐ Video Recording: Colour Bar with 1kHz Audio

Unwanted Signal:

AM at 1kHz at 80% Depth

Unwanted Signal for Audio or Video Function

Frequency MHz	Level dB(μV/m)
0,15 to 150	125

TEST REPORT

EN 55020 RF EM Field (AM Modulated Carrier)

Test Results

Test Mode	Type	Result (Pursuant to EN 55020, Criterion A)
USB Playing	Sweep	OK
DVD Playing	Sweep	OK

Note: Uncertainty: $\pm 2.5\text{dB}$ at a level of confidence of 95%.

☒ Additional Information

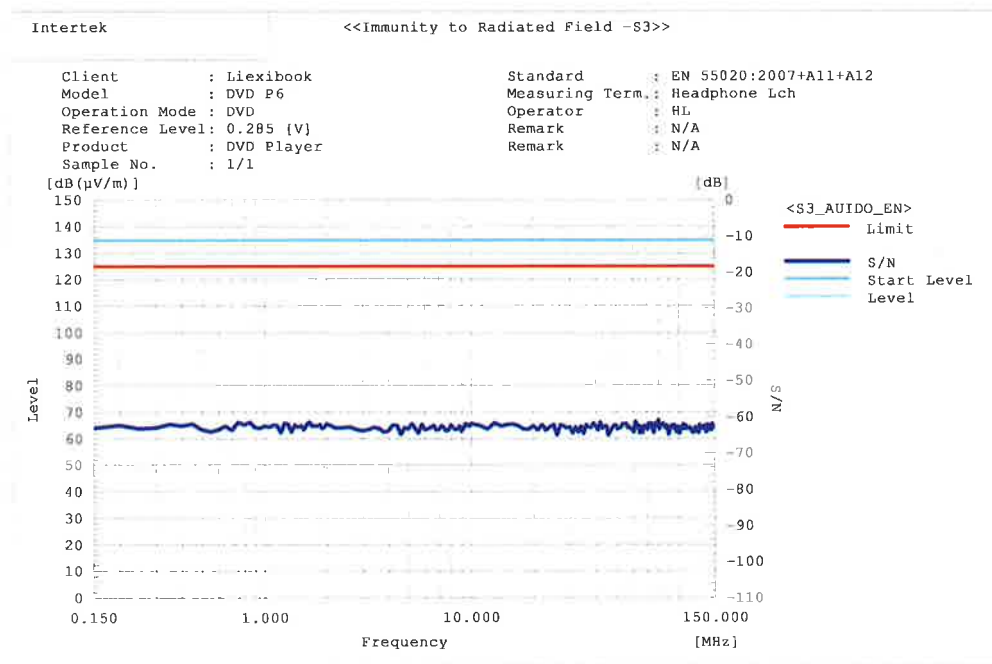
☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at ____MHz unwanted signal.

☐ EUT was in abnormal operation:
- operation mode was changed from ____ to ____ at ____ MHz.

☐ The interference level need to decrease for keeping the required picture quality / S/N ratio $\geq 40\text{dB}$

TEST REPORT



TEST REPORT

Photo of EUT

External Photo



TEST REPORT

Appendix 1

EMS equipment used checklist for Used Test Equipment for S2 and S3

Equipment	Registration No.	Manufacturer	Model No.	Serial No.
Power Amplifier	EW-1755	Schaffner	CBA9425	1018
Probe for Millivoltmeter	EW-1758	R&S	URV5-Z7	100218
Insertion Unit for Millivoltmeter	EW-1759	R&S	URV5-Z4	100032
Level Meter	EW-1761	R&S	URV35	100161
RF Millivolt-meter	EW-1762	R&S	URV55	100157
Signal Generator 9kHz - 1GHz	EW-1746	R&S	SML01	101489
Signal Generator	EW-1764	R&S	SML01	101490
Audio analyzer 10Hz - 100kHz	EW-1788	R&S	UPA2	100005
Audio Analyzer 20Hz - 100kHz	EW-2332	LEVEAR	VP-7723D	0631021LA
TEM Cell (Jacky) for EN 55020	EW-1867	Erika Fiedler	--	--
Bandpass filter (0.5-3kHz) for EN 55020	EW-1868	Erika Fiedler	--	--



Guidelines On Issuing EC Declaration Of Conformity Pursuant To EMC Directive

To attest the compliance of apparatus with the relevant EMC Directive, an EC Declaration of Conformity shall be issued by the manufacturer or his authorised representative in the European Community, and the attached EC Declaration of Conformity template contains all mandatory requirements pursuant to EMC Directive 2014/30/EU. Please follow the steps listed below when preparing an EC Declaration of Conformity:

1. Provide the name and address of the manufacturer;
2. Provide the name and address of the authorised representative in the European Community, where applicable;
3. For Apparatus' Description, specify the brand name and any other information allowing for the description of the apparatus to which the EC Declaration of Conformity refers;
4. For Apparatus' Identification, specify the type, batch, serial number or any other information allowing for the identification of the apparatus to which the EC Declaration of Conformity refers;
5. Specify the relevant EMC Directive with which the apparatus are in compliance;
6. List all dated specifications under which conformity is declared to ensure the conformity of the apparatus with the relevant EMC Directive, you may refer the standards shown in the Test Verification of Conformity issued by Intertek;
7. Sign the EC Declaration of Conformity by the person empowered to bind the manufacturer or his authorised representative in the European Community. The Name, Position and Company of this person shall be specified for identification;
8. State the date of issuing the EC Declaration of Conformity.

NOTES:

- a. The EC Declaration of Conformity shall be held by the manufacturer or his authorised representative in the European Community at the disposal of the competent authorities for a period of at least ten years after the date on which such apparatus was last manufactured. If neither the manufacturer nor his authorised representative is established within the European Community, the obligation to hold the EC Declaration of Conformity at the disposal of the competent authorities shall lie with the person who places the apparatus on the European Community market.
- b. If EMC Directive 2014/30/EU is applied, the manufacturer shall draw up technical documentation according to Annex IV of this EMC Directive; and in addition to CE Marking, the apparatus shall also meet other marks and information as stated in Article 9 of the same EMC Directive.
- c. The EC Declaration of Conformity guidelines and template are for your reference only, you shall ensure that the EMC Directive 2014/30/EU are applied correctly.

