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Report On

FCC Testing of the GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
Short Range Device Wireless Video Transmitter ESS400T
In accordance with FCC CFR 47 Part 15 Part C

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FCC ID: YRKESS400T

Document 57010087 Report 02 Issue 1 September 2010

TÜV Product Service Ltd Beijing Branch
9th floor, Landmark Tower 2, No.8 North Dongsanhuan Road, Beijing 100004, P.R. China
Tel: +86-10 6590 6186. Website: www.tuv-sud.cn

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REPORT ON

FCC CRF 47 Parts 15 C: 2008 Testing of the
GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
Short Range Device Wireless Video Transmitter ESS400T

Document 57010087 Report 02 Issue 1

September 2010

PREPARED FOR

GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
80 WHITE STREET, NEW YORK,NY 10013, America

PREPARED BY

Chen Jie
Project Engineer

APPROVED BY

ZHANG Changxin
Manager

DATED

27 September 2010

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SECTION 1

REPORT SUMMARY

FCC Testing of the GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
Short Range Device Wireless Video Transmitter ESS400T
in accordance with FCC CFR 47 Part 15C

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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the GENERAL TOOLS & INSTRUMENTS COMPANY LLC. Short Range Device Wireless Video Transmitter ESS400T to the requirements of FCC CFR 47 Part 15C: 2008.

Testing was carried out in support of an application for Grant of Equipment Authorisation of Short Range Device Wireless Video Transmitter ESS400T.

Objective	To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
Model Number(s)	Wireless Video Transmitter ESS400T
Serial Number(s)	Engineering sample
Antenna Gain	0dBi
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15C: 2008
Incoming Release Date	Declaration of Build Status 24 August 2010
Start of Test	31 August 2010
Finish of Test	14 September 2010
Related Document(s)	FCC CFR 47 Part 15:2008 ANSI C63.4:2003

Product Service

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 15: 2008 is shown below.

Configuration - Short Range Device Wireless Video Transmitter						
Section	FCC Clause	Test Description	Mode	Mod State	Result	Comments
2.1	15.249 (a)(c)(e)	Field Strength and Harmonics	2414, 2432,2468MHz	0	Pass	
2.2	15.249 (c)(d)(e) 15.209	Radiated Spurious Emissions	2432MHz	0	Pass	
2.3	2.1049 (h)	Occupied Bandwidth	2414,2432,2468MHz	0	Pass	
2.4	15.207	Conducted Emissions on Power Line	2432MHz	0	Pass	-Charging for TX
2.5	15.205	Restricted bands of operation.	2414,2468MHz	0	Pass	

Product Service

1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Short Range Device Wireless Video Transmitter
MANUFACTURER	GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
TYPE	ESS400T
SERIAL NUMBER	Engineering sample
TRANSMITTER OPERATING RANGE	2414MHz、2432MHz、2468MHz
COUNTRY OF ORIGIN	America
ITU DESIGNATION OF EMISSION	10M0F1F
FCC ID	YRKESS400T
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	ESS400T is a Short Range Device Wireless Video Transmitter
MANUFACTURING DESCRIPTION	The Wireless Video Transmitter ESS400T was powered by Polymer lithium battery; The batteries could be charged by the adaptor: Input: AC 100 – 240V, 50/60Hz Output: DC 5.5V 1.5A

No responsibility will be accepted by TÜV Product Service Beijing Branch as to the accuracy of the information declared in this document by the manufacturer.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) ESS400T was a GENERAL TOOLS & INSTRUMENTS COMPANY LLC. Short Range Device Wireless Video Transmitter as shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.

Equipment Under Test

Product Service

1.4.2 Test Configuration

Configuration 1: 2.4GHz Short Range Device

The EUT was configured in accordance with FCC CFR 47 Part 15: 2008.

1.4.3 Modes of Operation

Operation Modes

Mode 1 – 2414 MHz
Mode 2 – 2432 MHz
Mode 3 – 2468 MHz

Information on the specific test modes utilised are detailed in the test procedure for each individual test.

Product Service

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or an open test area as appropriate.

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification State	Description of Modification fitted to EUT	Sample S/N
0	Initial sample supplied by customer	Engineering sample

No modifications were made to the EUT during testing.

1.8 ALTERNATIVE TEST SITE

The testing was conducted at following site registrations:

FCC Accreditation 800392
QuieTek Technology (Suzhou) Co., Ltd.
No.99 Hongye RD.Suzhou Industrial Park Loufeng Hi-New-Tech Development Area,Suzhou,China

Product Service

SECTION 2

TEST DETAILS

FCC Testing of the GENERAL TOOLS & INSTRUMENTS COMPANY LLC.
Short Range Device Wireless Video Transmitter ESS400T
in accordance with FCC CFR 47 Part 15C

2.1 FIELD STRENGTH AND HARMONICS

2.1.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.249(a)(c)(e)

2.1.2 Equipment Under Test

Short Range Device Wireless Video Transmitter ESS400T

2.1.3 Date of Test and Modification State

31 August 2010 – Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Emissions identified within the range 2.4GHz – 2.4385GHz were formally measured using Peak and Average Dectectors, as propriate.

The measurements were performed at a 3m distance unless otherwise stated.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 1
- Mode 2
- Mode 3

2.1.6 Environmental Conditions

	31 August 2010
Ambient Temperature	23.2°C
Relative Humidity	24.1%

Product Service

2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 for Field Strength and Harmonics.

The test results are shown below.

Configuration 1 - Mode 1

Fundamental Frequencies

Fundamental Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	mV/m	AV/PK
2414	H	75.872	-5.931	69.941	-24.059	94.0	50	AV
	H	88.339	-5.944	82.395	-31.605	114.0	500	PK
2414	V	78.687	-5.931	72.756	-21.244	94.0	50	AV
	V	90.261	-5.924	84.337	-29.663	114.0	500	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Harmonic Frequencies

Harmonic Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	µV/m	AV/PK
4825.000	H	45.051	0.466	45.517	-28.483	74.0	5000	PK
4828.000	H	36.074	0.465	36.539	-17.461	54.0	500	AV
7239.000	H	44.950	6.863	51.813	-22.187	74.0	5000	PK
7242.000	H	32.068	6.877	38.945	-15.055	54.0	500	AV
9656.000	H	38.473	8.596	47.069	-26.931	74.0	5000	PK
12070.000	H	35.247	11.897	47.144	-26.856	74.0	5000	PK
14484.000	H	37.123	16.359	53.482	-20.518	74.0	5000	PK
16898.000	H	36.964	15.022	51.986	-22.014	74.0	5000	PK
4828.000	V	36.095	0.465	36.560	-17.440	54.0	500	AV
4833.500	V	44.580	0.464	45.044	-28.956	74.0	5000	PK
7242.000	V	34.036	6.877	40.913	-13.087	54.0	500	AV
7247.500	V	45.370	6.903	52.273	-21.727	74.0	5000	PK
9656.000	V	38.986	8.596	47.582	-26.418	74.0	5000	PK
12070.000	V	35.271	11.896	47.167	-26.833	74.0	5000	PK
14484.000	V	37.403	16.359	53.762	-20.238	74.0	5000	PK
16898.000	V	37.208	15.022	52.230	-21.770	74.0	5000	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Product Service

Configuration 1 - Mode 2

Fundamental Frequencies

Fundamental Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	mV/m	AV/PK
2432	H	71.955	-5.971	65.984	-28.016	94.0	50	AV
	H	90.425	-5.976	84.449	-29.551	114.0	500	PK
2432	V	70.647	-5.978	64.669	-29.331	94.0	50	AV
	V	89.365	-5.965	83.400	-30.600	114.0	500	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Harmonic Frequencies

Harmonic Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	µV/m	AV/PK
4859.000	H	45.476	0.390	45.866	-28.134	74.0	5000	PK
4864.000	H	36.250	0.340	36.590	-17.410	54.0	500	AV
7290.000	H	43.948	6.895	50.843	-23.157	74.0	5000	PK
7296.000	H	32.177	6.858	39.035	-14.965	54.0	500	AV
9728.000	H	37.962	9.137	47.099	-26.901	74.0	5000	PK
12160.000	H	38.273	12.021	50.294	-23.706	74.0	5000	PK
14592.000	H	37.468	16.053	53.521	-20.479	74.0	5000	PK
17024.000	H	37.638	15.592	53.230	-20.770	74.0	5000	PK
4864.000	V	36.818	0.340	37.158	-16.842	54.0	500	AV
4867.500	V	45.442	0.306	45.748	-28.252	74.0	5000	PK
7290.000	V	45.031	6.895	51.926	-22.074	74.0	5000	PK
7296.000	V	33.181	6.858	40.039	-13.961	54.0	500	AV
9728.000	V	38.026	9.137	47.163	-26.837	74.0	5000	PK
12160.000	V	36.163	12.021	48.184	-25.816	74.0	5000	PK
14592.000	V	36.835	16.053	52.888	-21.112	74.0	5000	PK
17024.000	V	38.393	15.592	53.985	-20.015	74.0	5000	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Product Service

Configuration 1 - Mode 3

Fundamental Frequencies

Fundamental Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	mV/m	AV/PK
2468	H	83.906	-5.743	78.163	-15.837	94.0	50	AV
	H	93.010	-5.745	87.265	-26.735	114.0	500	PK
2468	V	81.822	-5.742	76.080	-17.920	94.0	50	AV
	V	91.251	-5.745	85.506	-28.494	114.0	500	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Harmonic Frequencies

Harmonic Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit		Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	µV/m	AV/PK
4935.500	H	46.274	0.490	46.764	-27.236	74.0	5000	PK
4936.000	H	38.360	0.492	38.852	-15.148	54.0	500	AV
7400.500	H	44.746	6.697	51.443	-22.557	74.0	5000	PK
7404.000	H	34.132	6.696	40.828	-13.172	54.0	500	AV
9872.000	H	38.211	10.284	48.495	-25.505	74.0	5000	PK
12340.000	H	36.439	10.889	47.328	-26.672	74.0	5000	PK
14808.000	H	37.268	15.870	53.138	-20.862	74.0	5000	PK
17276.000	H	37.407	16.317	53.724	-20.276	74.0	5000	PK
4935.500	V	46.213	0.490	46.703	-27.297	74.0	5000	PK
4936.000	V	35.610	0.492	36.101	-17.899	54.0	500	AV
7392.000	V	46.208	6.701	52.909	-21.091	74.0	5000	PK
7404.000	V	35.210	6.696	41.906	-12.094	54.0	500	AV
9872.000	V	37.391	10.284	47.675	-26.325	74.0	5000	PK
12340.000	V	36.264	10.889	47.153	-26.847	74.0	5000	PK
14808.000	V	37.476	15.870	53.346	-20.654	74.0	5000	PK
17276.000	V	36.891	16.316	53.208	-20.792	74.0	5000	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Limit	Fundamental : ≤50mV/m or ≤94dBµV/m(AV) ≤500mV/m or ≤114dBµV/m(PK) Harmonics: ≤500 µV/m or ≤54dBµV/m(AV) ≤5000 µV/m or ≤74dBµV/m(PK)

Remarks

The field strength of emissions from the intentional radiator operated in the 2400MHz to 2483.5MHz band did not exceed 50mV/m or 94dBµV/m (Average) & 500mV/m or 114dBµV/m (Peak) for the fundamental, 500µV/m or 54dBµV/m (Average) & 5000µV/m or 74dBµV/m (Peak) for harmonics.

2.2 RADIATED SPURIOUS EMISSIONS

2.2.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.249(c)(d)(e),15.209

2.2.2 Equipment Under Test

Short Range Device Wireless Video Transmitter ESS400T

2.2.3 Date of Test and Modification State

31 August 2010 – Modification State 0

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations.

Emissions identified within the range 30MHz – 1GHz were then formally meausred using a Peak and Quasi-Peak detector. as propriate.

The measurements were performed at a 3m distance unless otherwise stated.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 2

2.2.6 Environmental Conditions

	31 August 2010
Ambient Temperature	23.2°C
Relative Humidity	24.1%

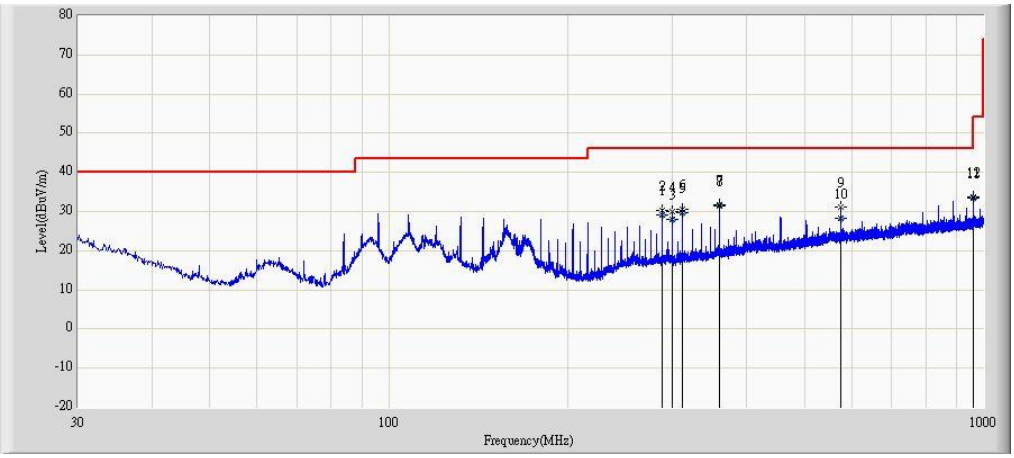
Product Service

2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 Radiated Spurious Emissions.

The test results are shown below.

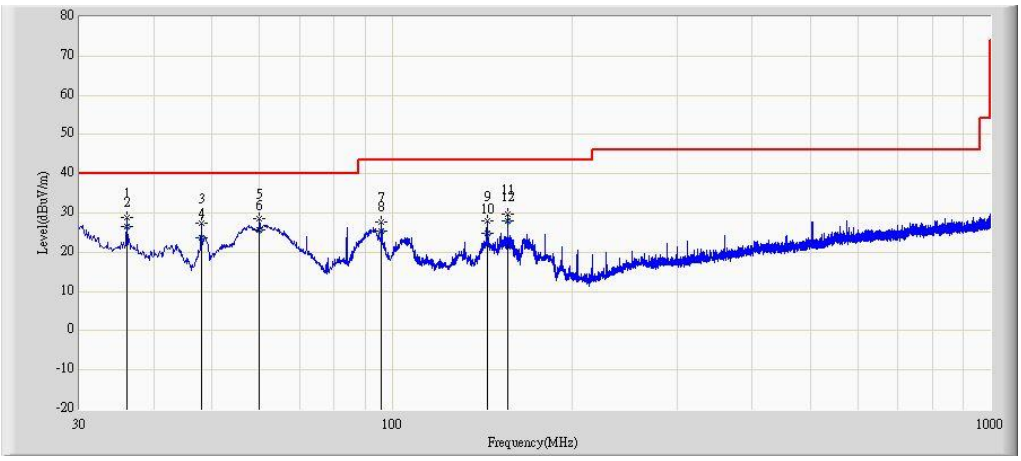
Configuration 1 - Mode 2



Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit	Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	QP/PK
287.990	H	15.200	13.970	29.170	-16.830	46.000	QP
288.020	H	16.386	13.970	30.356	-15.644	46.000	PK
300.019	H	13.900	14.204	28.104	-17.896	46.000	QP
300.024	H	15.746	14.204	29.950	-16.050	46.000	PK
312.000	H	15.100	14.612	29.712	-16.288	46.000	QP
312.027	H	15.999	14.613	30.612	-15.388	46.000	PK
360.000	H	15.700	16.090	31.790	-14.210	46.000	QP
360.043	H	15.474	16.090	31.564	-14.436	46.000	PK
575.989	H	10.942	20.198	31.140	-14.860	46.000	PK
576.013	H	8.200	20.198	28.398	-17.602	46.000	QP
960.007	H	10.500	23.044	33.544	-20.456	54.000	QP
960.109	H	10.708	23.039	33.747	-20.253	54.000	PK

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

.



Frequency (MHz)	Polarisation (Vertical/ Horizontal)	Reading Level	Factor	Field Strength	Over Limit	Limit	Type
		(dBuV)	(dB)	dBµV/m	(dB)	dBµV/m	QP/PK
35.941	V	13.560	15.176	28.737	-11.263	40.000	PK
35.980	V	11.500	15.154	26.654	-13.346	40.000	QP
47.945	V	18.309	9.117	27.426	-12.574	40.000	PK
47.978	V	14.500	9.104	23.604	-16.396	40.000	QP
59.949	V	22.768	5.927	28.695	-11.305	40.000	PK
59.990	V	19.700	5.920	25.621	-14.379	40.000	QP
95.960	V	17.209	10.612	27.821	-15.679	43.500	PK
95.996	V	14.700	10.617	25.316	-18.184	43.500	QP
143.975	V	16.824	11.273	28.097	-15.403	43.500	PK
144.000	V	13.700	11.271	24.971	-18.529	43.500	QP
155.979	V	19.169	10.442	29.611	-13.889	43.500	PK
155.988	V	17.600	10.441	28.042	-15.458	43.500	QP

Note: Field Strength =Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Limit

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30 – 88	100	40.0	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

Remarks

The EUT does not exceed the limit at the measured frequency.

Product Service

2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC CFR 47 Part 2: 2008, Clause 2.1049(h)

2.3.2 Equipment Under Test

Short Range Device Wireless Video Transmitter ESS400T

2.3.3 Date of Test and Modification State

31 August 2010 – Modification State 0

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2: 2008.

Connect EUT's antenna terminal to the spectrum analyser via a low loss cable with transmitting mode.

Adjust the centre frequency of the spectrum analyser on the frequency be measured, and set for peak detector mode; max hold trace mode RBW=100 KHz and VBW=300 KHz.

The span of the analyzer approximately 2 to 3 times the channel bandwidth shall be set to capture all products of the modulation process, including the emission skirts. Use the marker-to-peak function to set the marker to the peak of the emission.

Use the OBW function to measure 99%emission bandwidth, record the occupied bandwidth value.

Repeat the above procedures until all assigned frequencies to be measured.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 1
- Mode 2
- Mode 3

2.3.6 Environmental Conditions

	31 August 2010
Ambient Temperature	23.6°C
Relative Humidity	24.3%

Product Service

2.3.7 Test Results

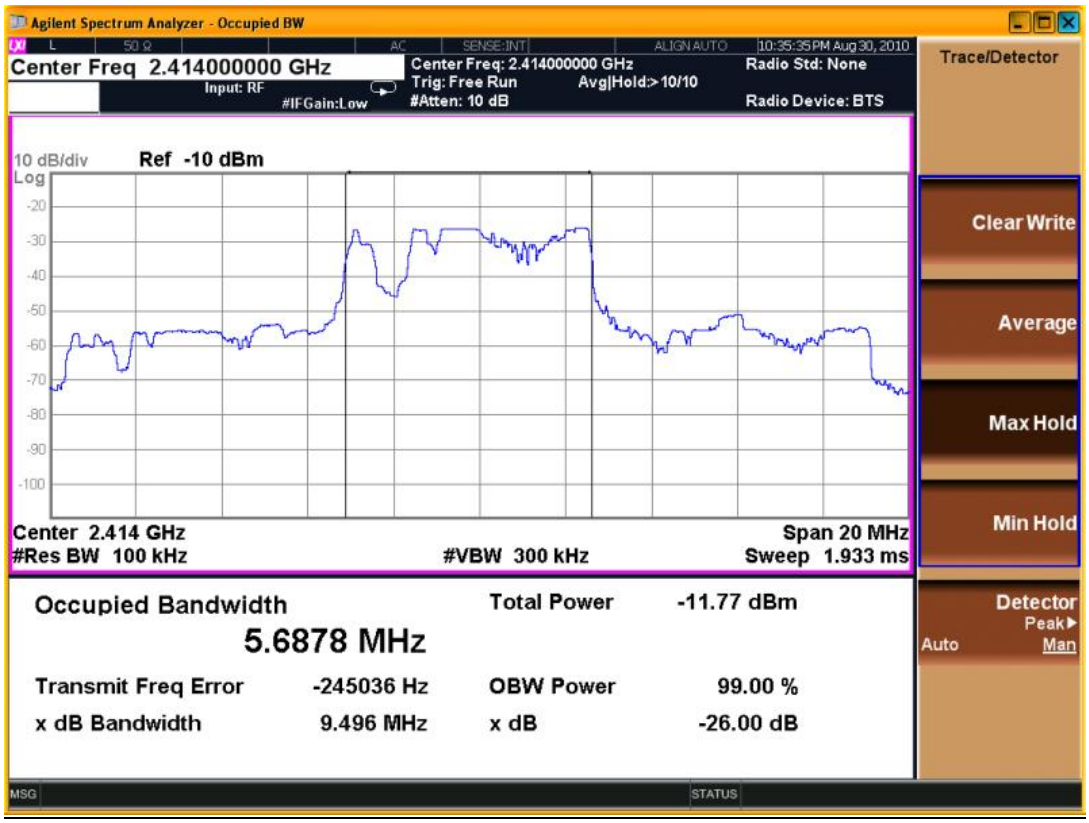
For the period of test the EUT met the requirements of FCC CFR 47 Part 2: 2008 for Occupied Bandwidth.

Configuration 1 - Mode 1

Frequency (MHz)	Occupied bandwidth (MHz)
2414	9.496

The plot of test result are shown below.

Configuration 1 - Mode 1

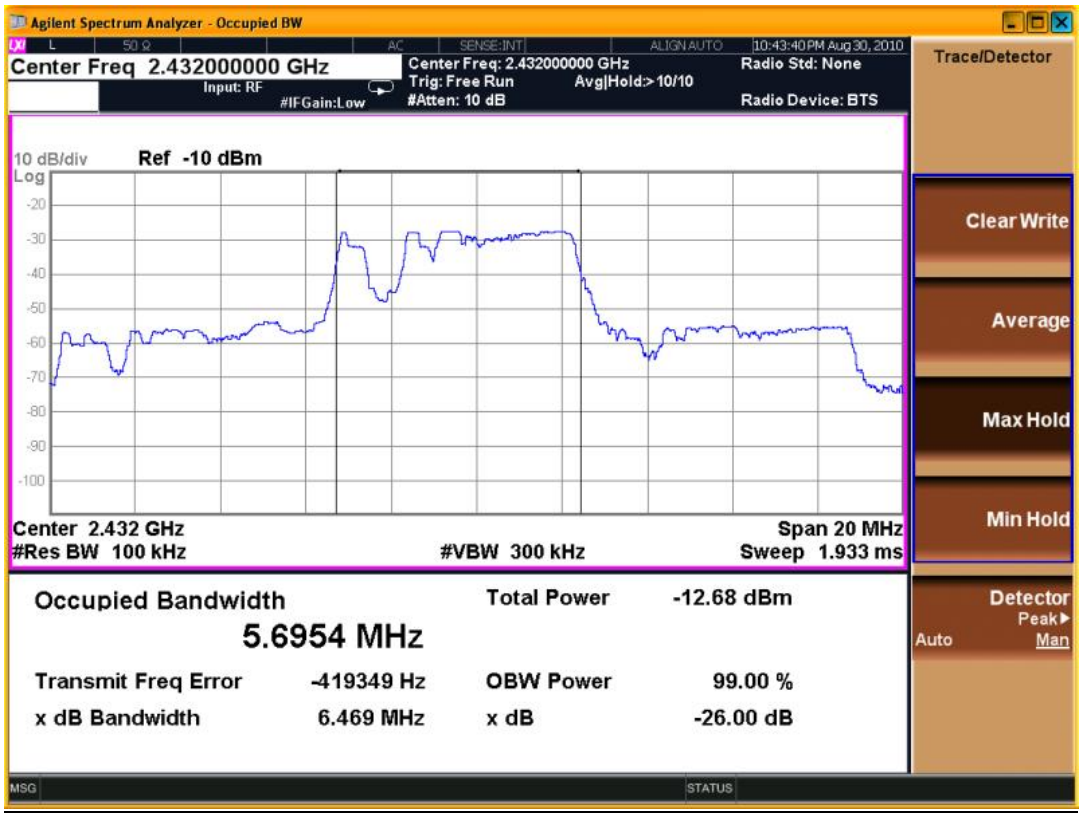


Configuration 1 - Mode 2

Frequency (MHz)	Occupied bandwidth (MHz)
2432	6.469

The plot of test result are shown below.

Configuration 1 - Mode 2



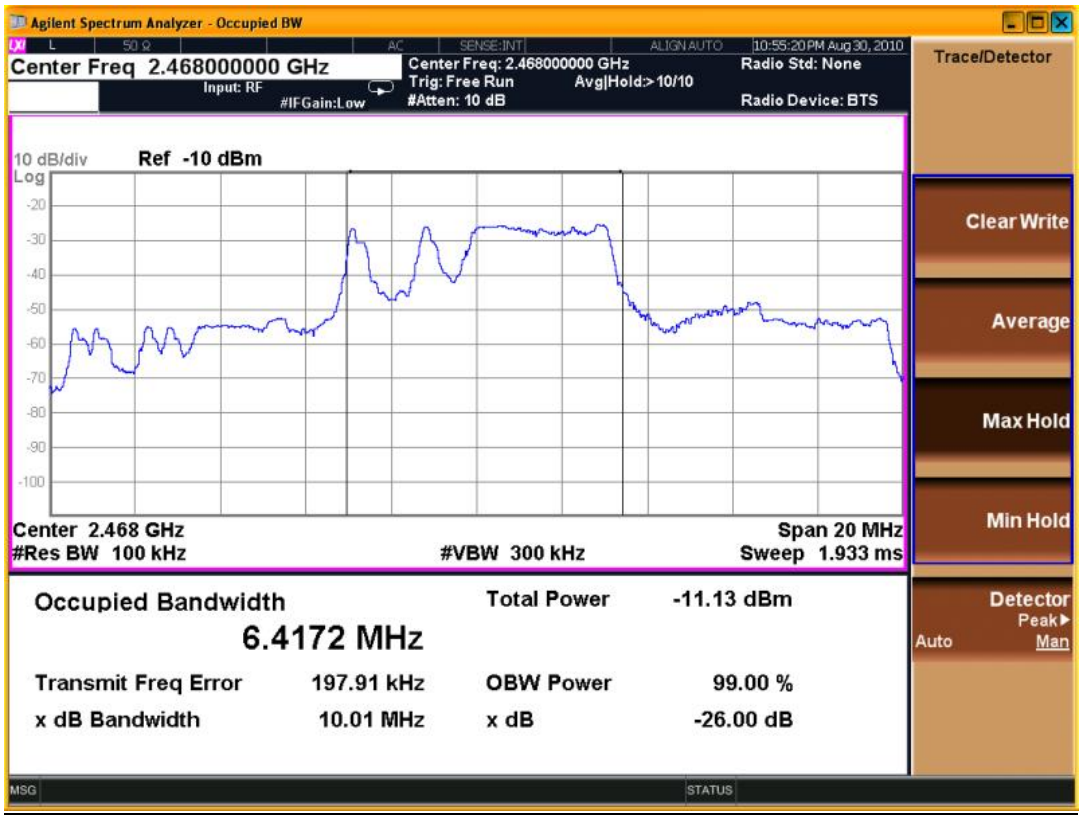
Product Service

Configuration 1 - Mode 3

Frequency (MHz)	Occupied bandwidth (MHz)
2468	10.01

The plot of test result are shown below.

Configuration 1 - Mode 3



2.4 CONDUCTED EMISSION ON POWER LINE

2.4.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.207

2.4.2 Equipment Under Test

Short Range Device Wireless Video Transmitter ESS400T

2.4.3 Date of Test and Modification State

31 August 2010 – Modification State 0

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

The EUT was placed 0.4 meters from the conducting wall of the shield room with the power mains 120V/60Hz through an artificical mains network (AMN). The distance between the computer and AMN was 80cm.

Emissions were formally measured using a Quasi-Peak and Average Detectors, which meet the CISPR requirements. The details of the worst-case emissions for the Live and Neutral Lines are presented in the tables below.

Conducted Emission were measured on Live and Neutral Lines in turn.

Measurements were made over the frequency range 0.15MHz to 30MHz.

The EUT was supplied from a AC/DC Adatptor.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 2

2.4.6 Environmental Conditions

	31 August 2010
Ambient Temperature	23.3°C
Relative Humidity	24.4%

Product Service

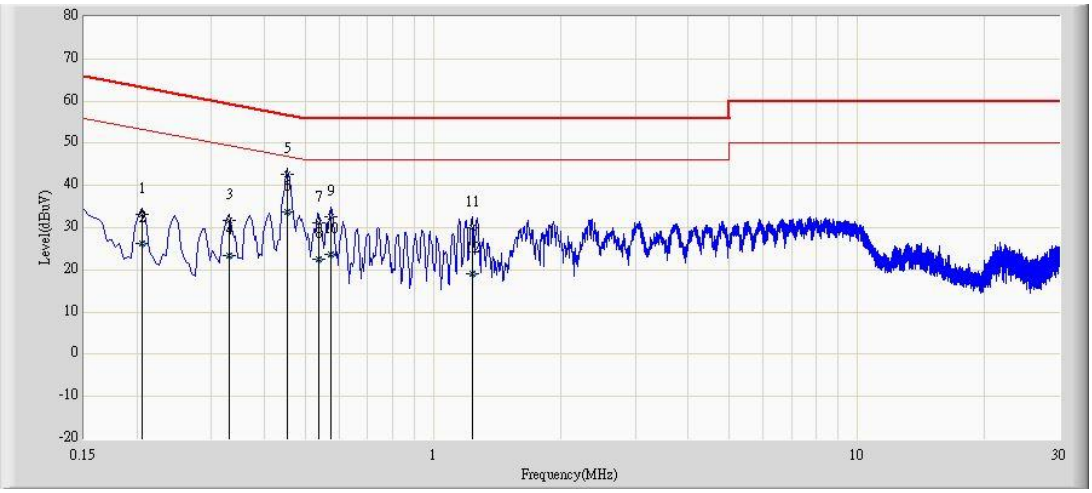
2.4.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 for Conducted Emissions on Power Line.

The plots of test results are shown below.

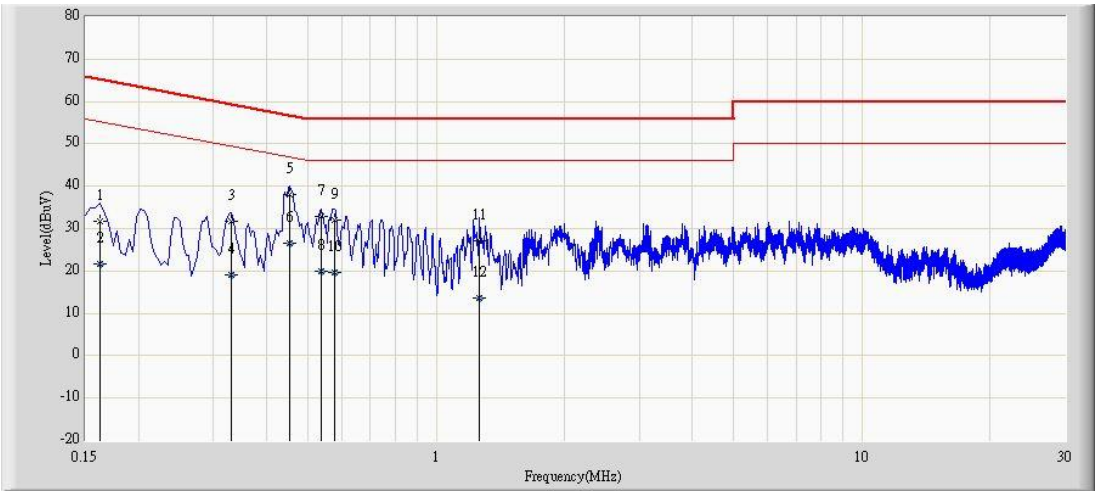
Configuration 1 - Mode 2

Live Line



Emission Frequency (MHz)	Measure Level	Margin	Limit	Type
	dBµV	dB	dBµV µV	AV/QP
0.206	33.294	-30.071	63.365	QP
0.206	26.298	-27.067	53.365	AV
0.330	31.746	-27.706	59.451	QP
0.330	23.506	-25.945	49.451	AV
0.454	42.711	-14.090	56.802	QP
0.454	33.661	-13.140	46.802	AV
0.538	31.261	-24.739	56.000	QP
0.538	22.552	-23.448	46.000	AV
0.574	32.639	-23.361	56.000	QP
0.574	23.728	-22.272	46.000	AV
1.234	30.080	-25.920	56.000	QP
1.234	19.060	-26.940	46.000	AV

Neutral Line



Emission Frequency (MHz)	Measure Level	Margin	Limit	Type
	dBµV	dB	dBµV µV	AV/QP
0.162	31.831	-33.530	65.361	QP
0.162	21.586	-33.775	55.361	AV
0.330	31.748	-27.704	59.451	QP
0.330	19.073	-30.378	49.451	AV
0.454	38.090	-18.712	56.802	QP
0.454	26.566	-20.236	46.802	AV
0.538	32.895	-23.105	56.000	QP
0.538	19.839	-26.161	46.000	AV
0.578	31.989	-24.011	56.000	QP
0.578	19.531	-26.469	46.000	AV
1.266	27.149	-28.851	56.000	QP
1.266	13.572	-32.428	46.000	AV

Limit

Emission Frequency (MHz)	Limit ---dBµV	
	QP	Average
0.15---0.5	❖ 66 to 56	❖ 56 to 46
0.5---5	56	46
5---30	60	50
❖ Decreases with the logarithm of the frequency		

2.5 RESTRICTED BANDS OF OPERATION

2.5.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.205

2.5.2 Equipment Under Test

Short Range Device Wireless Video Transmitter ESS400T

2.5.3 Date of Test and Modification State

31 August 2010 – Modification State 0

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

The measurements were performed at a 3m distance.

The test was performed with the EUT in the transmitting mode

RBW=1MHz, VBW=3MHz, Maxhold, Average Dectectors.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 1
- Mode 3

2.5.6 Environmental Conditions

	31 August 2010
Ambient Temperature	23.3°C
Relative Humidity	24.4%

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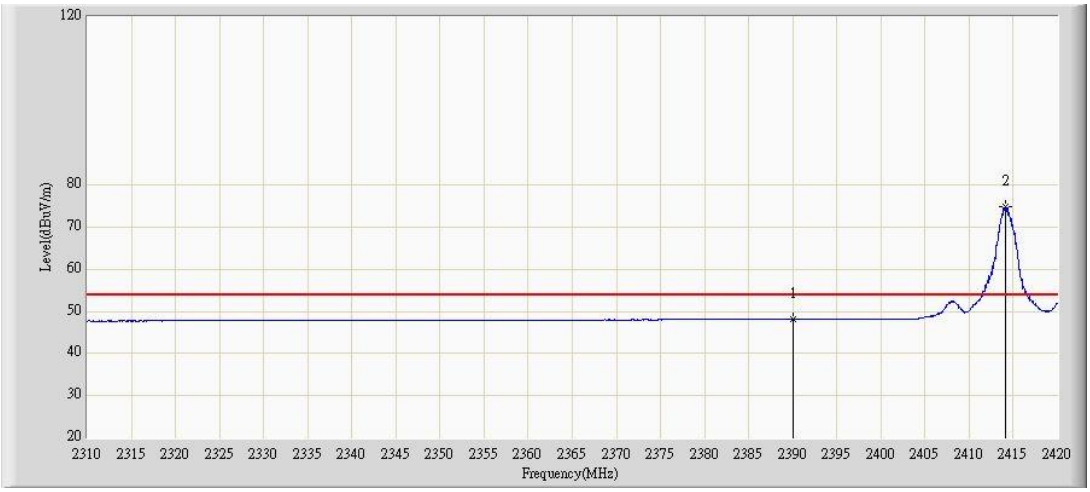
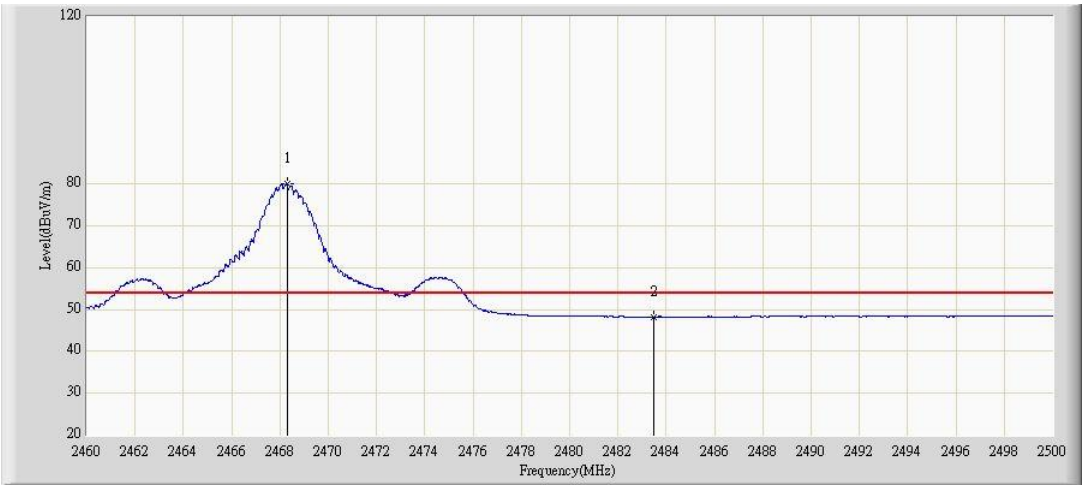
2.5.7 Test Results



Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
2390.000	48.169	17.257	-5.831	54.000	30.911	AV



Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
2483.500	48.275	17.341	-5.725	54.000	30.934	AV

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Limit

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

The EUT is operating on 2412 MHz, this falls between the restricted bands of 2310---2390 MHz and 2483.5 - 2500 MHz

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SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	Serial No.	Calibration Date
3m Semi-Anechoic Chamber (AC2)				
EMI Test Receiver	R&S	ESCI	100573	2010.04.23
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2009.11.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2010.05.05
3m Semi-Anechoic Chamber (AC5)				
Spectrum Analyzer	Agilent	N9010A	MY48030494	2010.04.23
Preamplifier	QuieTek	AP-180C	CHM-0602013	2010.05.05
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2010.06.11
Conducted Emisision Testing Room (TR1)				
EMI Test Receiver	R&S	ESCI	100906	2010.01.15
Two-Line V-Network	R&S	ENV 216	101043	2010.06.18

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3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Worst case error for both Time and Frequency measurement 12 parts in 10^6.		

* In accordance with CISPR 16-4

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SECTION 4

DISCLAIMERS AND COPYRIGHT

4.1 DISCLAIMERS AND COPYRIGHT

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