

FCC Test Report

Client Name : GLOBAL TRANSPORT EXCHANGE LIMITED

Client Address : UNIT 1331, 13/F, BEVERLEY COMMERCIAL CENTRE,
87-105 CHATHAM ROAD SOUTH, TSIM SHA TSUI,
KOWLOON, HONGKONG, CHINA

Product Name : Smart oven

Report Date : Feb. 26, 2023

Shenzhen Anbotek Compliance Laboratory Limited

Shenzhen Anbotek Compliance Laboratory Limited

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Code: AB-RF-05-b



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TEST REPORT

Applicant : GLOBAL TRANSPORT EXCHANGE LIMITED
Manufacturer : UNIT 1331,13/F, BEVERLEY COMMERCIAL CENTRE,87-105 CHATHAM ROAD SOUTH,TSIM SHA TSUI,KOWLOON,HONGKONG,CHINA
Product Name : Smart oven
Model No. : KL2, KL3
Trade Mark : FlighMart
Rating(s) : 380V 50Hz 10kW

Test Standard(s) : FCC Part15 Subpart C, Section 15.247

Test Method(s) : ANSI C63.10: 2020, KDB 558074 D01 15.247 Meas Guidance v05r02

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt

Jan. 28, 2023

Date of Test

Jan. 28 ~Feb. 28, 2023

Prepared by

(Ella Liang)

Approved & Authorized Signer



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Aug. 01, 2021



1. General Information

1.1. Client Information

Applicant	:	GLOBAL TRANSPORT EXCHANGE LIMITED
Address	:	UNIT 1331,13/F, BEVERLEY COMMERCIAL CENTRE, 87-105 CHATHAM ROAD SOUTH, TSIM SHA TSUI, KOWLOON, HONGKONG, CHINA
Manufacturer	:	GLOBAL TRANSPORT EXCHANGE LIMITED
Address	:	Room 301, No. 2, Zhongwuwei Commercial Second Street, Dongcheng District, Dongguan City, Guangdong Province
Factory	:	GLOBAL TRANSPORT EXCHANGE LIMITED
Address	:	Room 301, No. 2, Zhongwuwei Commercial Second Street, Dongcheng District, Dongguan City, Guangdong Province

1.2. Description of Device (EUT)

Product Name	:	Smart oven
Model No.	:	KL2, KL3((Note: Except for model, appearance size and power supply, all sample circuit principles and PCB versions are the same.))
Trade Mark	:	FlighMart
Test Power Supply	:	380V 50Hz 10kW
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Operation Mode	:	☒ 802.11b ☒ 802.11g ☒ 802.11n(HT20) ☐ 802.11n(HT40)
Operation Frequency	:	2412~2462MHz
Number of Channel	:	11 Channel for 20MHz bandwidth (2412~2462MHz)
Modulation Type	:	☒ 802.11b: DSSS (CCK, DQPSK, DBPSK) ☒ 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) ☒ 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	:	External antenna
Antenna Gain(Peak)	:	2 dBi (Provided by customer)

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2) The power supply voltage shall be determined by the customer and communicated with the seller to confirm that it can be used normally in the United States



1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
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1.4. Description of Test Configuration

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Note:

1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. For 802.11b, 802.11g, and 802.11n(HT20) modes were test with channel 1, 6, 11.



1.5. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2022	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.	EMI Preamplifier	SKET Electronic	LNPA-0118G -45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 19, 2022	1 Year



1.6. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.7. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102



2. Summary of Test Results

Standard Section	Test Item	Result
15.203/15.247(c)	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209	Spurious Emission	PASS
15.247(b)(3)	Conducted Peak Output Power	PASS
15.247(a)(2)	6dB Occupied Bandwidth	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Band Edge	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

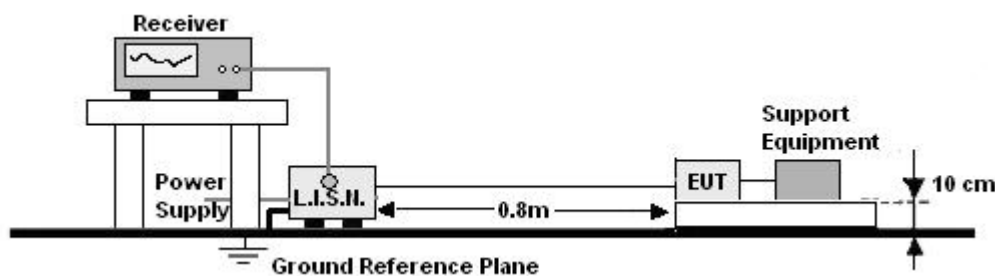


3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

During the test, pre-scan all modes, only the worst case is recorded in the report.

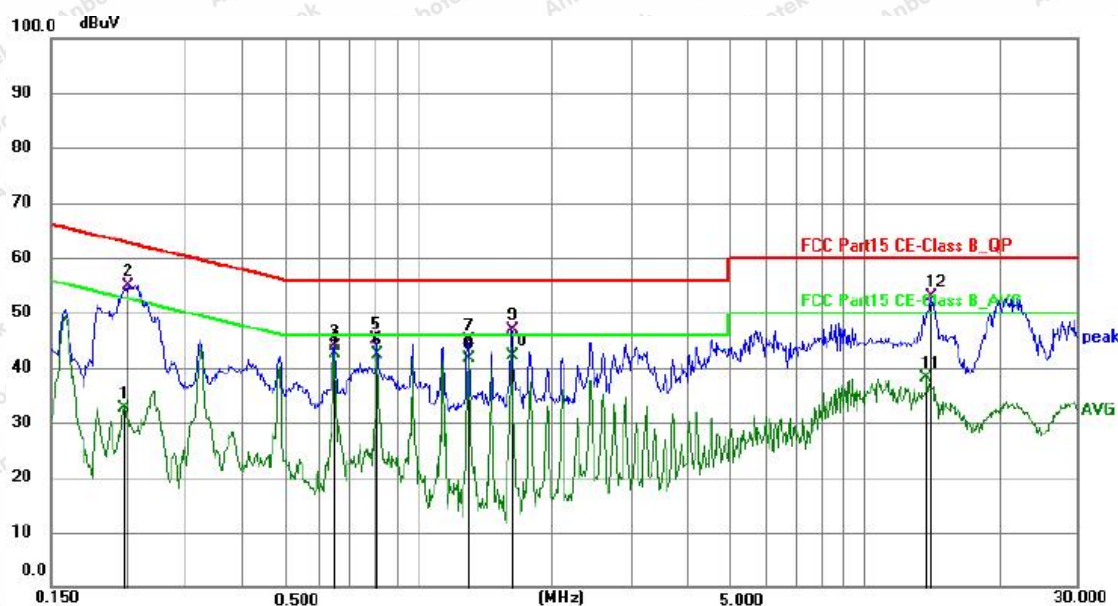
Recorded worst case AC 380V/50Hz.

Please to see the following pages.



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 1
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL2



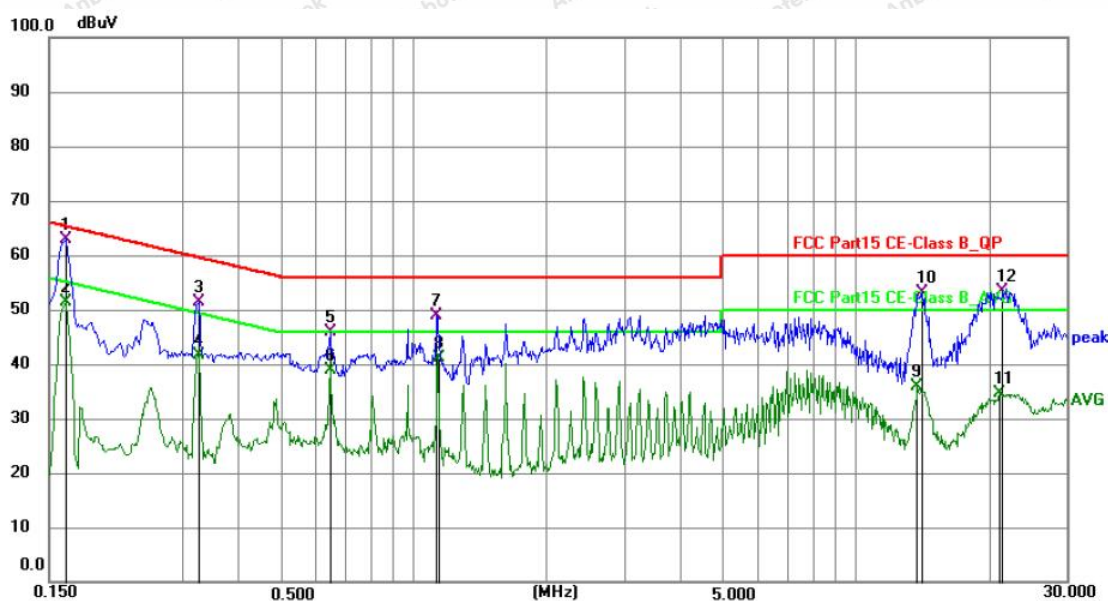
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2174	22.44	10.24	32.68	52.92	-20.24	AVG	P
2	0.2230	44.59	10.24	54.83	62.71	-7.88	QP	P
3	0.6491	33.56	10.36	43.92	56.00	-12.08	QP	P
4 *	0.6491	32.26	10.36	42.62	46.00	-3.38	AVG	P
5	0.8070	34.91	10.34	45.25	56.00	-10.75	QP	P
6	0.8114	31.95	10.34	42.29	46.00	-3.71	AVG	P
7	1.2925	34.49	10.41	44.90	56.00	-11.10	QP	P
8	1.2975	31.19	10.41	41.60	46.00	-4.40	AVG	P
9	1.6210	36.56	10.43	46.99	56.00	-9.01	QP	P
10	1.6210	31.81	10.43	42.24	46.00	-3.76	AVG	P
11	13.8025	27.43	10.67	38.10	50.00	-11.90	AVG	P
12	14.1400	42.31	10.68	52.99	60.00	-7.01	QP	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 2
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL2



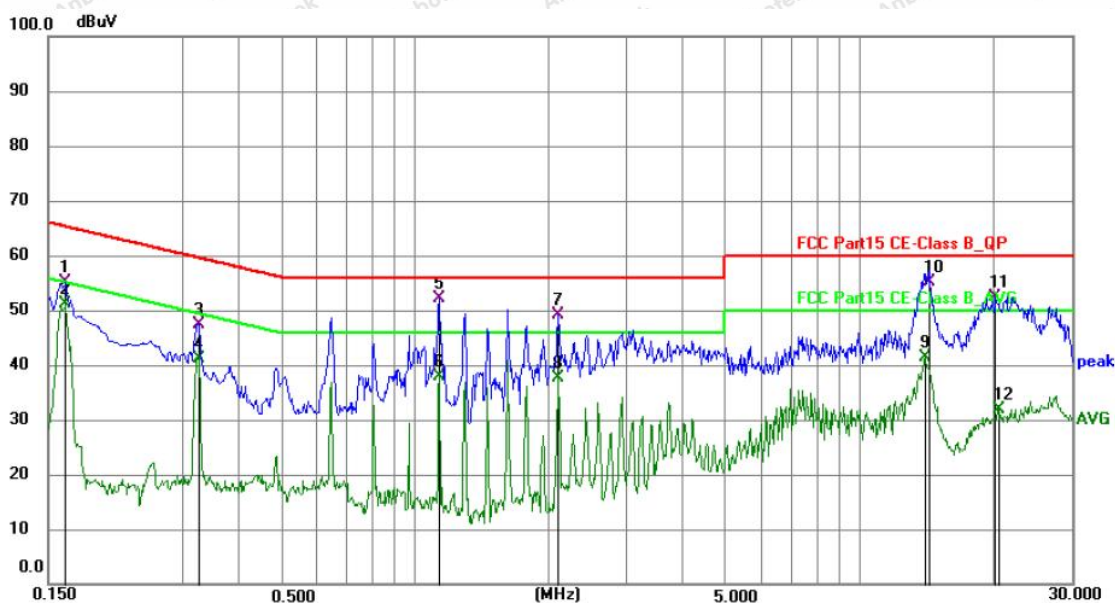
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1 *	0.1635	52.80	10.20	63.00	65.28	-2.28	QP	P
2	0.1635	41.19	10.20	51.39	55.28	-3.89	AVG	P
3	0.3255	41.03	10.26	51.29	59.57	-8.28	QP	P
4	0.3255	31.49	10.26	41.75	49.57	-7.82	AVG	P
5	0.6491	35.55	10.40	45.95	56.00	-10.05	QP	P
6	0.6491	28.40	10.40	38.80	46.00	-7.20	AVG	P
7	1.1310	38.43	10.45	48.88	56.00	-7.12	QP	P
8	1.1351	30.75	10.45	41.20	46.00	-4.80	AVG	P
9	13.8384	25.05	10.71	35.76	50.00	-14.24	AVG	P
10	14.1850	42.29	10.73	53.02	60.00	-6.98	QP	P
11	21.1960	23.65	10.97	34.62	50.00	-15.38	AVG	P
12	21.5335	42.39	10.98	53.37	60.00	-6.63	QP	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 3
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL2



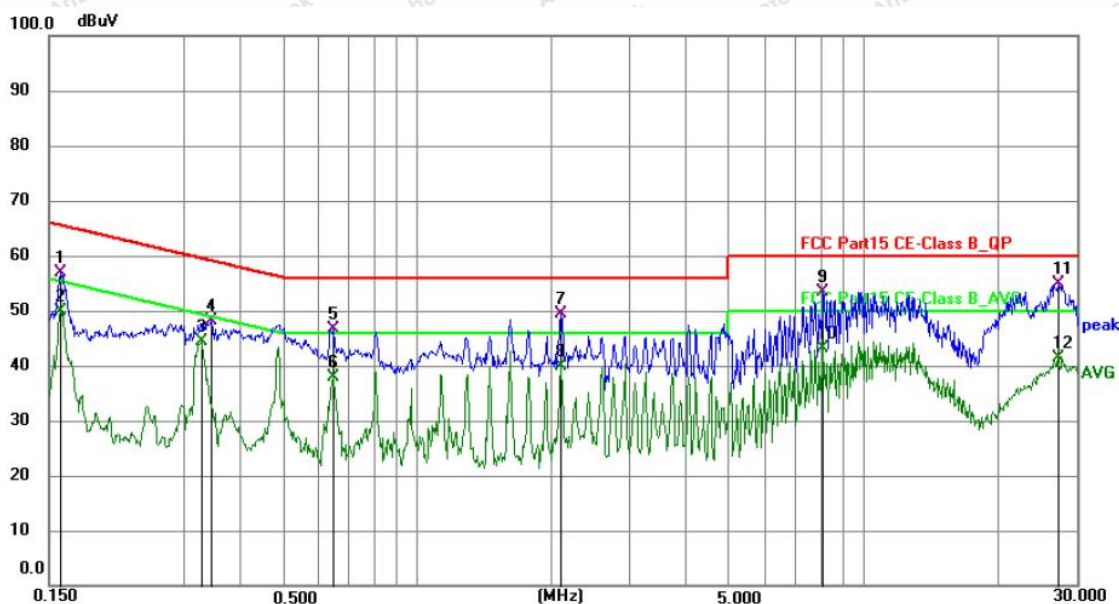
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1635	45.02	10.20	55.22	65.28	-10.06	QP	P
2	0.1635	41.05	10.20	51.25	55.28	-4.03	AVG	P
3	0.3255	37.15	10.26	47.41	59.57	-12.16	QP	P
4	0.3255	30.97	10.26	41.23	49.57	-8.34	AVG	P
5 *	1.1350	41.67	10.45	52.12	56.00	-3.88	QP	P
6	1.1350	27.48	10.45	37.93	46.00	-8.07	AVG	P
7	2.1074	38.71	10.43	49.14	56.00	-6.86	QP	P
8	2.1074	27.18	10.43	37.61	46.00	-8.39	AVG	P
9	14.0545	30.69	10.72	41.41	50.00	-8.59	AVG	P
10	14.3018	44.47	10.73	55.20	60.00	-4.80	QP	P
11	20.2012	41.48	10.95	52.43	60.00	-7.57	QP	P
12	20.6920	20.84	10.96	31.80	50.00	-18.20	AVG	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL2



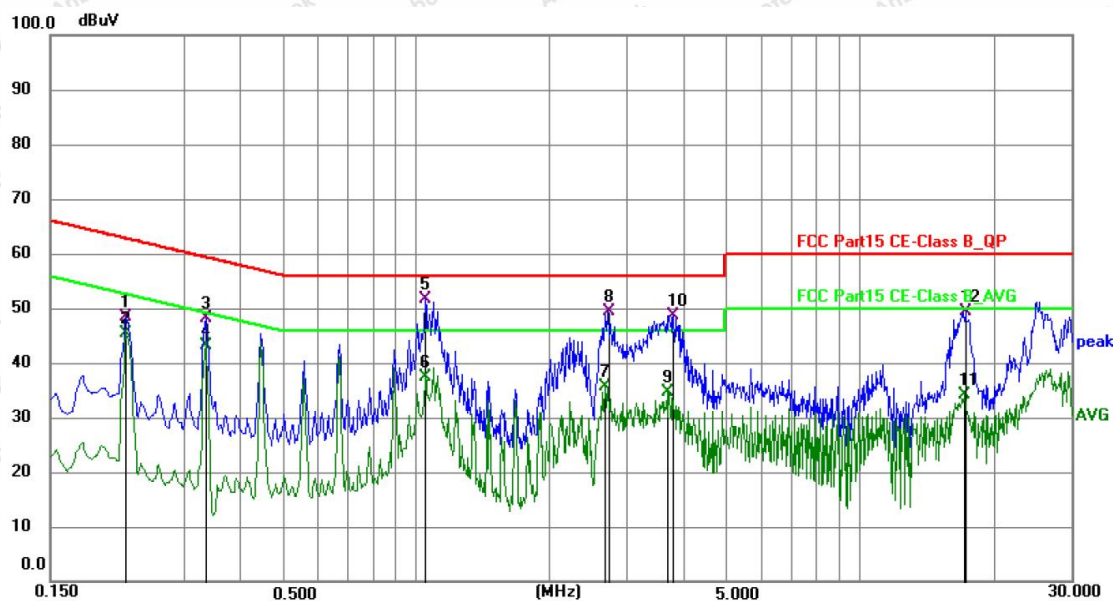
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1590	46.71	10.22	56.93	65.52	-8.59	QP	P
2	0.1590	39.56	10.22	49.78	55.52	-5.74	AVG	P
3	0.3285	34.22	10.25	44.47	49.49	-5.02	AVG	P
4	0.3462	37.75	10.26	48.01	59.05	-11.04	QP	P
5	0.6491	36.31	10.39	46.70	56.00	-9.30	QP	P
6	0.6491	27.44	10.39	37.83	46.00	-8.17	AVG	P
7	2.1030	38.97	10.47	49.44	56.00	-6.56	QP	P
8	2.1030	29.44	10.47	39.91	46.00	-6.09	AVG	P
9	8.1272	42.95	10.55	53.50	60.00	-6.50	QP	P
10	8.1272	32.61	10.55	43.16	50.00	-6.84	AVG	P
11 *	27.3246	44.01	10.98	54.99	60.00	-5.01	QP	P
12	27.3246	30.51	10.98	41.49	50.00	-8.51	AVG	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 1
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL3



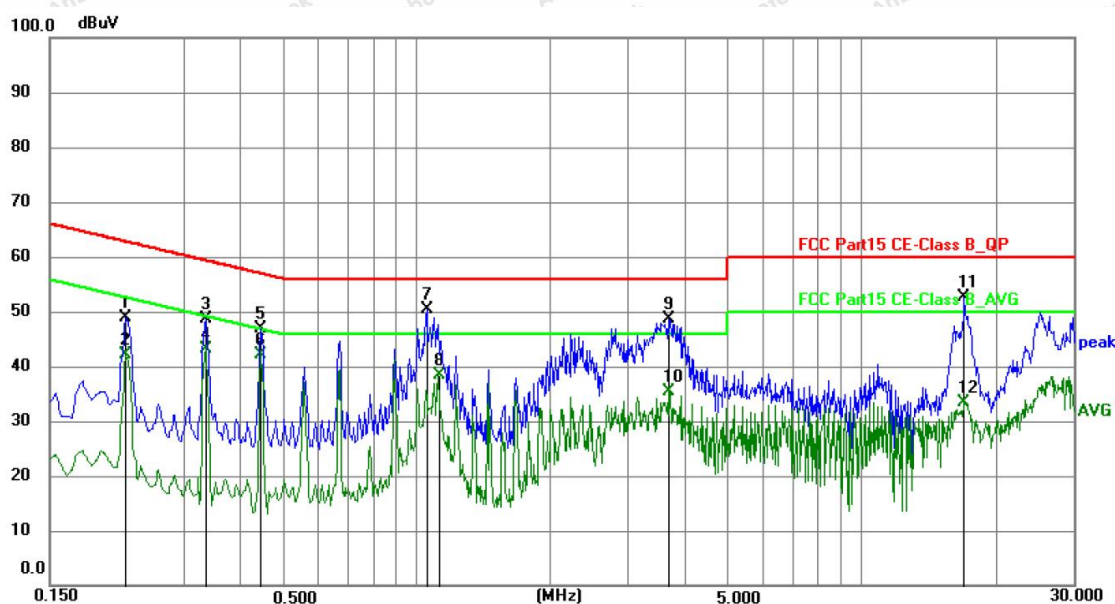
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2220	38.20	10.21	48.41	62.74	-14.33	QP	P
2	0.2220	35.13	10.21	45.34	52.74	-7.40	AVG	P
3	0.3345	37.82	10.25	48.07	59.34	-11.27	QP	P
4	0.3345	32.87	10.25	43.12	49.34	-6.22	AVG	P
5 *	1.0500	41.24	10.40	51.64	56.00	-4.36	QP	P
6	1.0500	27.07	10.40	37.47	46.00	-8.53	AVG	P
7	2.6745	25.16	10.46	35.62	46.00	-10.38	AVG	P
8	2.7150	38.88	10.45	49.33	56.00	-6.67	QP	P
9	3.6825	24.11	10.48	34.59	46.00	-11.41	AVG	P
10	3.8130	38.24	10.49	48.73	56.00	-7.27	QP	P
11	17.2000	23.25	10.78	34.03	50.00	-15.97	AVG	P
12	17.3349	38.52	10.78	49.30	60.00	-10.70	QP	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 2
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL3



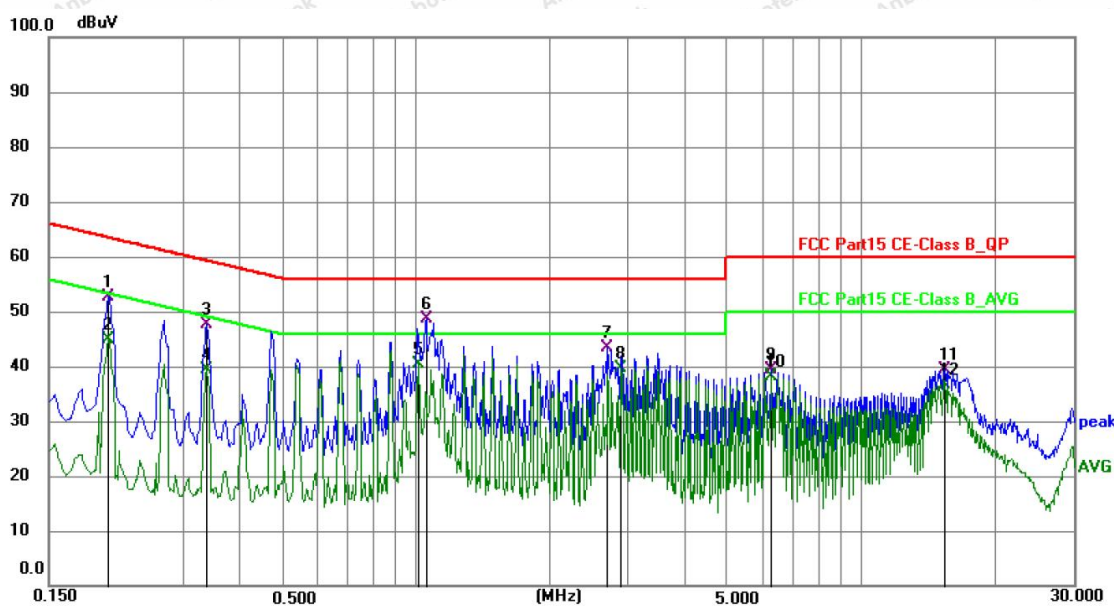
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2220	38.75	10.24	48.99	62.74	-13.75	QP	P
2	0.2220	31.98	10.24	42.22	52.74	-10.52	AVG	P
3	0.3345	38.33	10.27	48.60	59.34	-10.74	QP	P
4	0.3345	32.96	10.27	43.23	49.34	-6.11	AVG	P
5	0.4470	36.68	10.31	46.99	56.93	-9.94	QP	P
6 *	0.4470	31.80	10.31	42.11	46.93	-4.82	AVG	P
7	1.0544	39.91	10.39	50.30	56.00	-5.70	QP	P
8	1.1170	28.04	10.40	38.44	46.00	-7.56	AVG	P
9	3.6825	38.12	10.44	48.56	56.00	-7.44	QP	P
10	3.6825	24.88	10.44	35.32	46.00	-10.68	AVG	P
11	17.0289	41.78	10.79	52.57	60.00	-7.43	QP	P
12	17.0289	22.61	10.79	33.40	50.00	-16.60	AVG	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Live Line 3
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL3



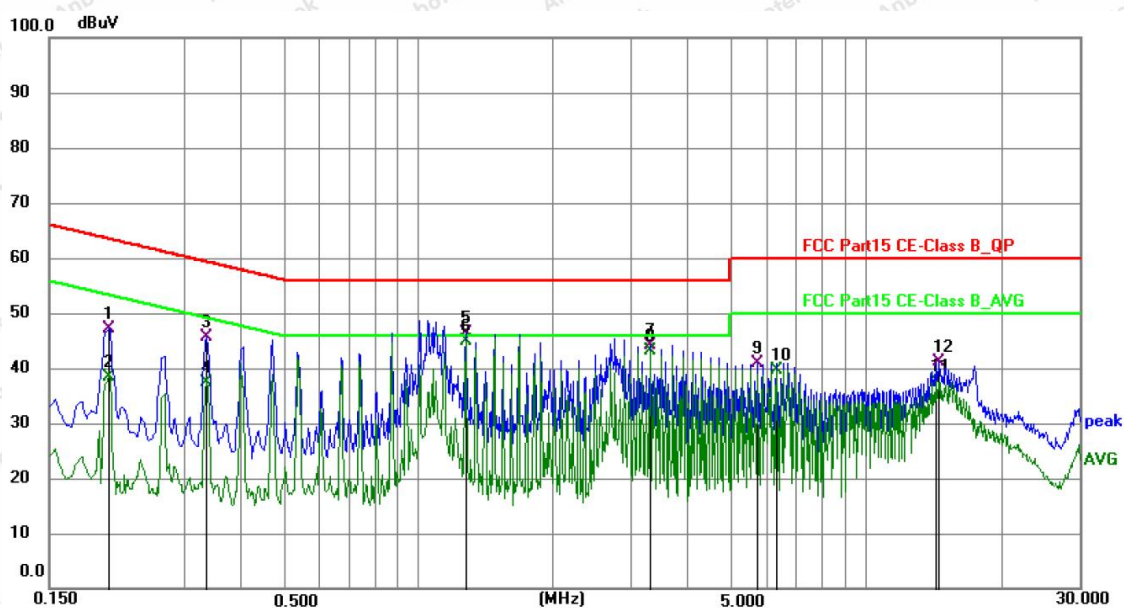
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2038	42.36	10.22	52.58	63.45	-10.87	QP	P
2	0.2038	34.73	10.22	44.95	53.45	-8.50	AVG	P
3	0.3390	37.31	10.28	47.59	59.23	-11.64	QP	P
4	0.3390	29.11	10.28	39.39	49.23	-9.84	AVG	P
5 *	1.0181	29.98	10.39	40.37	46.00	-5.63	AVG	P
6	1.0544	38.22	10.39	48.61	56.00	-7.39	QP	P
7	2.6970	32.89	10.45	43.34	56.00	-12.66	QP	P
8	2.8995	29.17	10.43	39.60	46.00	-6.40	AVG	P
9	6.2869	28.86	10.47	39.33	60.00	-20.67	QP	P
10	6.2869	27.57	10.47	38.04	50.00	-11.96	AVG	P
11	15.4672	28.59	10.72	39.31	60.00	-20.69	QP	P
12	15.4672	26.00	10.72	36.72	50.00	-13.28	AVG	P

Note: Result=Reading+Factor Over Limit=Result-Limit



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n (HT20) 2412MHz
Test Specification: AC 380V, 50Hz
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH
Model No: KL2



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2038	36.94	10.21	47.15	63.45	-16.30	QP	P
2	0.2038	28.05	10.21	38.26	53.45	-15.19	AVG	P
3	0.3345	35.45	10.25	45.70	59.34	-13.64	QP	P
4	0.3345	27.13	10.25	37.38	49.34	-11.96	AVG	P
5	1.2795	35.84	10.45	46.29	56.00	-9.71	QP	P
6 *	1.2795	34.51	10.45	44.96	46.00	-1.04	AVG	P
7	3.3000	33.68	10.48	44.16	56.00	-11.84	QP	P
8	3.3000	32.63	10.48	43.11	46.00	-2.89	AVG	P
9	5.7244	30.46	10.49	40.95	60.00	-19.05	QP	P
10	6.3272	29.21	10.52	39.73	50.00	-10.27	AVG	P
11	14.3335	26.85	10.70	37.55	50.00	-12.45	AVG	P
12	14.5358	30.45	10.70	41.15	60.00	-18.85	QP	P

Note: Result=Reading+Factor Over Limit=Result-Limit



4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

- (1) The lower limit shall apply at the transition frequency.
- (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

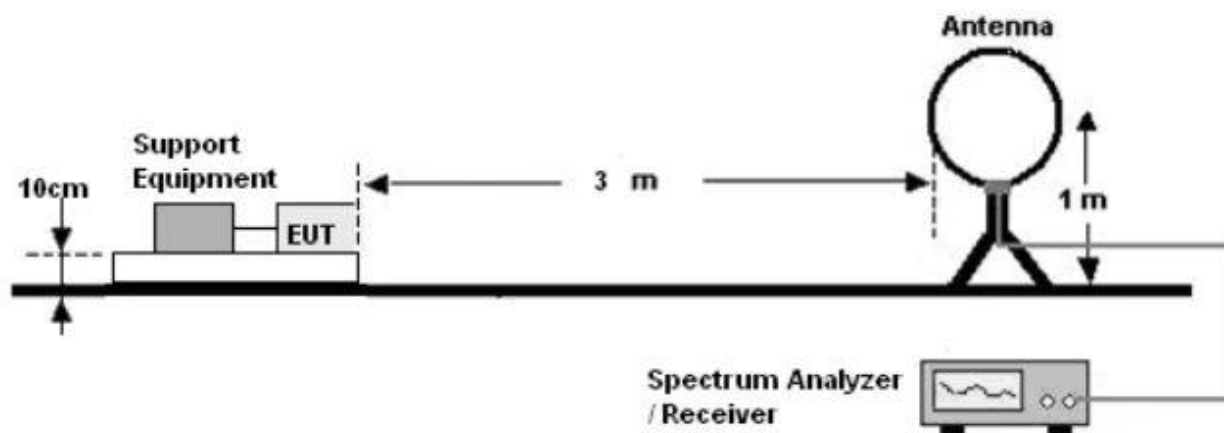


Figure 1. Below 30MHz



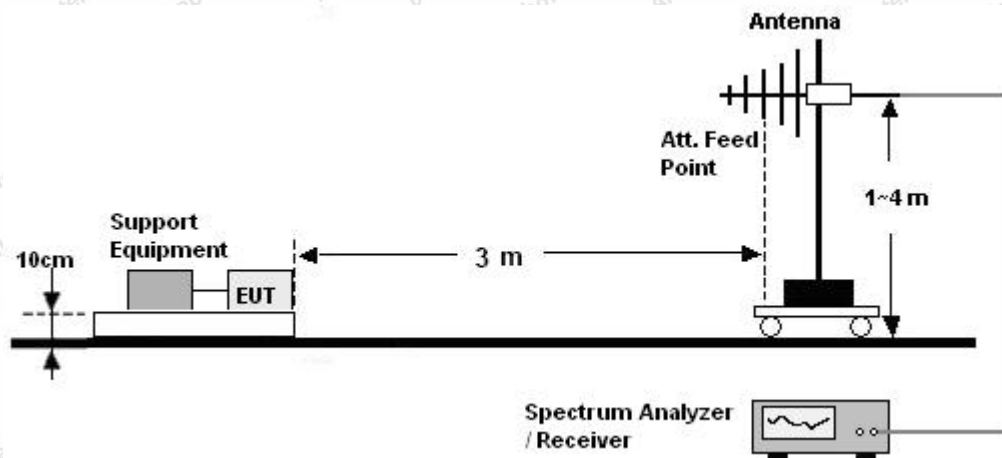


Figure 2. 30MHz to 1GHz

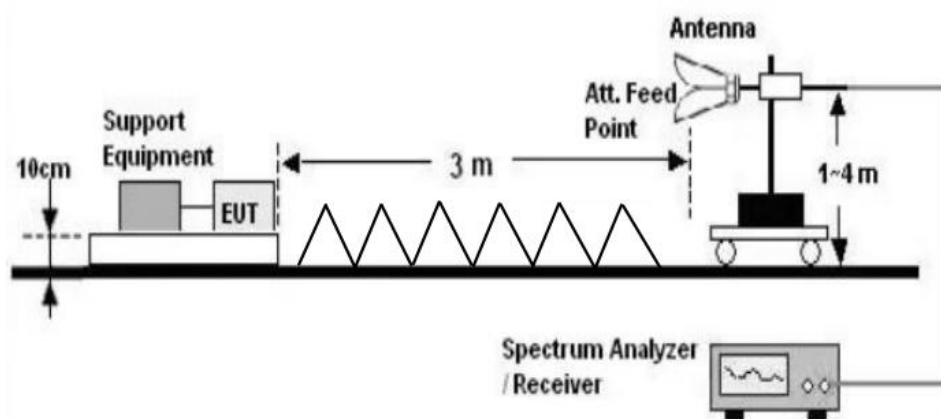


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.1m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 0.1m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of



emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:

RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

For average measurement:

–VBW=10Hz, When duty cycle is no less than 98 percent

–VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation, so refer to this clause 5.4 duty cycle.

4.4. Test Data

PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

During the test, pre-scan all modes, only the worst case is recorded in the report.



Test Results (30~1000MHz)

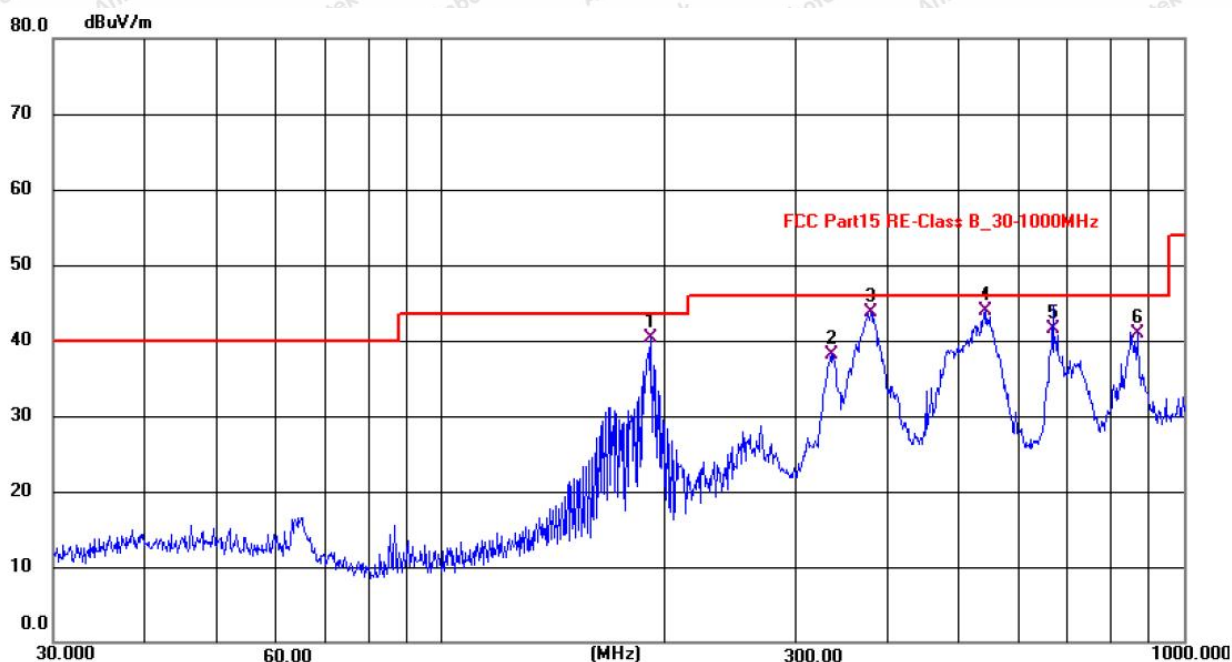
Test Mode: 802.11n (HT20) 2412MHz

Power Source: AC 380V, 50Hz

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 22.5°C/50%RH

Model No: KL2



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	191.8122	58.35	-18.05	40.30	43.50	-3.20	QP
2	335.5053	52.10	-13.97	38.13	46.00	-7.87	QP
3	378.5842	56.09	-12.48	43.61	46.00	-2.39	QP
4 *	541.6572	52.41	-8.58	43.83	46.00	-2.17	QP
5	666.5042	47.96	-6.41	41.55	46.00	-4.45	QP
6	868.9778	43.52	-2.71	40.81	46.00	-5.19	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



Test Results (30~1000MHz)

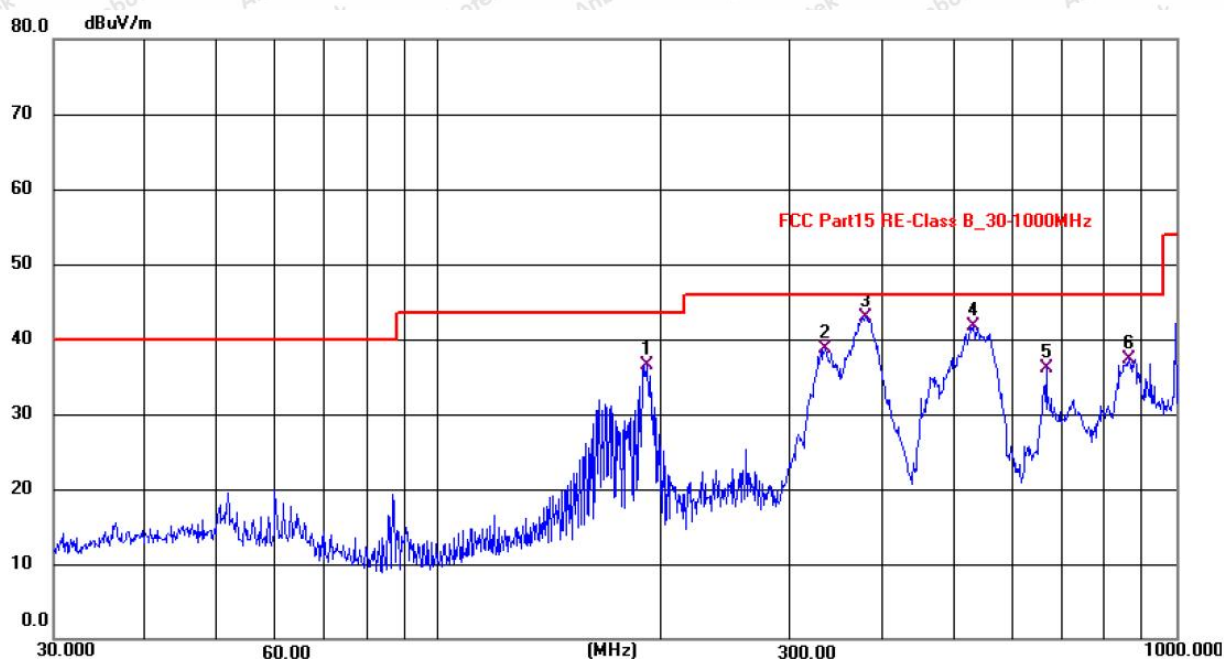
Test Mode: 802.11n (HT20) 2412MHz

Power Source: AC 380V, 50Hz

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 22.5°C/50%RH

Model No: KL2



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	191.7450	54.62	-18.06	36.56	43.50	-6.94	QP
2	334.6240	52.63	-14.01	38.62	46.00	-7.38	QP
3 *	379.3150	55.42	-12.45	42.97	46.00	-3.03	QP
4	531.5905	50.40	-8.76	41.64	46.00	-4.36	QP
5	666.5041	42.48	-6.41	36.07	46.00	-9.93	QP
6	863.2074	40.06	-2.79	37.27	46.00	-8.73	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



Test Results (30~1000MHz)

Test Mode: 802.11n (HT20) 2412MHz

Power Source: AC 380V, 50Hz

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 22.5°C/50%RH

Model No: KL3



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	191.8121	55.85	-18.05	37.80	43.50	-5.70	QP
2	254.9070	45.68	-16.33	29.35	46.00	-16.65	QP
3	378.5842	49.59	-12.48	37.11	46.00	-8.89	QP
4 *	541.6572	50.41	-8.58	41.83	46.00	-4.17	QP
5	666.5041	45.66	-6.41	39.25	46.00	-6.75	QP
6	849.5444	42.57	-2.99	39.58	46.00	-6.42	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



Test Results (30~1000MHz)

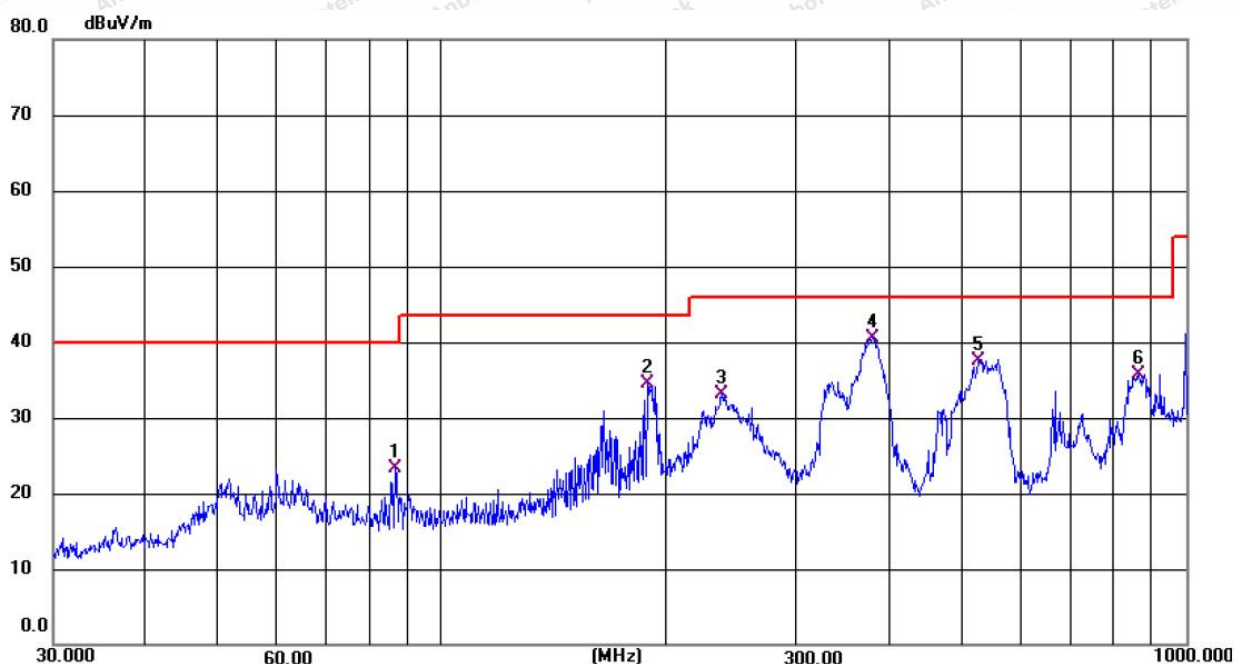
Test Mode: 802.11n (HT20) 2412MHz

Power Source: AC 380V, 50Hz

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 22.5°C/50%RH

Model No: KL3



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	86.7609	42.80	-19.50	23.30	40.00	-16.70	QP
2	188.9415	52.44	-17.95	34.49	43.50	-9.01	QP
3	237.9344	49.31	-16.28	33.03	46.00	-12.97	QP
4 *	379.3149	52.92	-12.45	40.47	46.00	-5.53	QP
5	526.0276	46.35	-8.88	37.47	46.00	-8.53	QP
6	863.2074	38.56	-2.79	35.77	46.00	-10.23	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Lowest			
Model No:KL2							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2412	41.18	2.76	43.94	54	-10.06	Vertical	Average
2412	61.74	2.76	64.5	74	-9.5	Vertical	peak
4824	36.66	3.08	39.74	54	-14.26	Vertical	Average
4824	54.18	3.08	57.26	74	-16.74	Vertical	peak
7236	38.88	4.33	43.21	54	-10.79	Vertical	Average
7236	62.17	4.33	66.5	74	-7.5	Horizontal	peak
2412	44.88	2.76	47.64	54	-6.36	Horizontal	Average
2412	60.00	2.76	62.76	74	-11.24	Horizontal	peak
4824	42.22	3.08	45.3	54	-8.7	Horizontal	Average
4824	59.29	3.08	62.37	74	-11.63	Horizontal	peak



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Middle			
Model No:KL2							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2437	40.28	2.79	43.07	54	-10.93	Vertical	Average
2437	62.32	2.79	65.11	74	-8.89	Vertical	peak
4874	38.17	3.12	41.29	54	-12.71	Vertical	Average
4874	55.29	3.12	58.41	74	-15.59	Vertical	peak
7311	37.98	4.37	42.35	54	-11.65	Vertical	Average
7311	60.99	4.37	65.36	74	-8.64	Horizontal	peak
2437	42.25	2.56	44.81	54	-9.19	Horizontal	Average
2437	62.58	2.56	65.14	74	-8.86	Horizontal	peak
4874	41.82	3.12	44.94	54	-9.06	Horizontal	Average
4874	60.29	3.12	63.41	74	-10.59	Horizontal	peak



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Highest			
Model No:KL2							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2462	40.73	2.83	43.56	54	-10.44	Vertical	Average
2462	59.32	2.83	62.15	74	-11.85	Vertical	peak
4924	42.14	3.34	45.48	54	-8.52	Vertical	Average
4924	53.54	3.34	56.88	74	-17.12	Vertical	peak
7386	38.54	4.57	43.11	54	-10.89	Vertical	Average
7386	60.83	4.57	65.4	74	-8.6	Horizontal	peak
2462	41.45	2.83	44.28	54	-9.72	Horizontal	Average
2462	63.72	2.83	66.55	74	-7.45	Horizontal	peak
4924	42.87	3.34	46.21	54	-7.79	Horizontal	Average
4924	57.34	3.34	60.68	74	-13.32	Horizontal	peak



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Lowest			
Model No:KL3							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2412	40.11	2.76	42.87	54	-11.13	Vertical	Average
2412	60.23	2.76	62.99	74	-11.01	Vertical	peak
4824	39.97	3.08	43.05	54	-10.95	Vertical	Average
4824	60.24	3.08	63.32	74	-10.68	Vertical	peak
7236	42.17	4.33	46.5	54	-7.5	Vertical	Average
7236	60.17	4.33	64.5	74	-9.5	Horizontal	peak
2412	42.29	2.76	45.05	54	-8.95	Horizontal	Average
2412	60.15	2.76	62.91	74	-11.09	Horizontal	peak
4824	43.22	3.08	46.3	54	-7.7	Horizontal	Average
4824	60.11	3.08	63.19	74	-10.81	Horizontal	peak



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Middle			
Model No:KL3							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2437	43.28	2.79	46.07	54	-7.93	Vertical	Average
2437	60.32	2.79	63.11	74	-10.89	Vertical	peak
4874	39.58	3.12	42.7	54	-11.3	Vertical	Average
4874	56.34	3.12	59.46	74	-14.54	Vertical	peak
7311	38.22	4.37	42.59	54	-11.41	Vertical	Average
7311	58.88	4.37	63.25	74	-10.75	Horizontal	peak
2437	44.24	2.56	46.8	54	-7.2	Horizontal	Average
2437	63.33	2.56	65.89	74	-8.11	Horizontal	peak
4874	44.17	3.12	47.29	54	-6.71	Horizontal	Average
4874	57.49	3.12	60.61	74	-13.39	Horizontal	peak



Test Results (Above 1000MHz)

Test Mode: 802.11n (HT20) Mode				Test channel: Highest			
Model No:KL3							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	Detector Type
2462	42.22	2.79	45.01	54	-8.99	Vertical	Average
2462	58.23	2.79	61.02	74	-12.98	Vertical	peak
4924	40.24	3.12	43.36	54	-10.64	Vertical	Average
4924	57.77	3.12	60.89	74	-13.11	Vertical	peak
7386	40.18	4.37	44.55	54	-9.45	Vertical	Average
7386	59.45	4.37	63.82	74	-10.18	Horizontal	peak
2462	42.15	2.56	44.71	54	-9.29	Horizontal	Average
2462	61.16	2.56	63.72	74	-10.28	Horizontal	peak
4924	41.54	3.12	44.66	54	-9.34	Horizontal	Average
4924	58.67	3.12	61.79	74	-12.21	Horizontal	peak

Remark:

1. During the test, pre-scan KL2, KL3.802.11b, g, n (HT20) mode, and find that 802.11n (HT20) mode is worse. The report only records this mode.
2. Result=Reading + Factor/Over Limit=Result-Limit
3. “*”, means this data is the too weak instrument of signal is unable to test.



Radiated Band Edge:

Test Mode: 802.11n (HT20) Mode				Test channel: Lowest			
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Antenna Pol.	Detector
2390	36.58	7.38	43.96	54	-10.04	H	Peak
2400	34.19	7.41	41.6	54	-12.4	V	Peak
2390	58.64	7.38	66.02	74	-7.98	H	AVG
2400	56.66	7.41	64.07	74	-9.93	V	AVG
Test Mode: 802.11n (HT20) Mode				Test channel: Highest			
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Antenna Pol.	Detector
2483.5	35.18	7.44	42.62	54	-11.38	H	Peak
2500	36.67	7.49	44.16	54	-9.84	V	Peak
2483.5	54.18	7.44	61.62	74	-12.38	H	AVG
2500	53.27	7.49	60.76	74	-13.24	V	AVG

Remark:Remark:

1. During the test, pre-scan the 802.11b,g,n(HT20) mode, and found the 802.11n (HT20) mode is worse case , the report only record this mode.
2. Result=Reading + Factor/Over Limit=Result-Limit

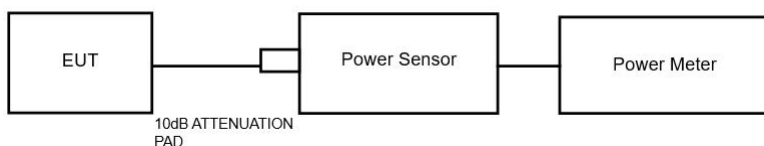


5. Maximum Peak Output Power Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(3)
Test Limit	1W (30dBm)

5.2. Test Setup



5.3. Test Procedure

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.

5.4. Test Data

Pass

Please refer to Appendix C of the Appendix Test Data.

Additional test for duty cycle.

Please refer to Appendix G of the Appendix Test Data.

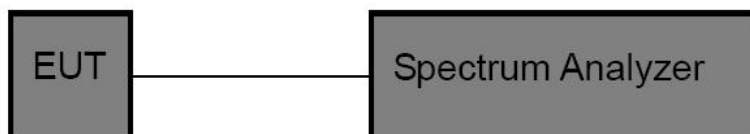


6. 6DB Occupy Bandwidth Test

6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(2)
Test Limit	≥500kHz

6.2. Test Setup



6.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
RBW= 100kHz, VBW≥3*RBW
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

6.4. Test Data

Pass

Please refer to Appendix A of the Appendix Test Data.

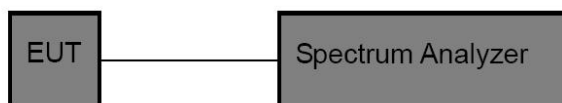


7. Power Spectral Density Test

7.1. Test Standard and Limit

Test Standard	FCC Part15 C Section
Test Limit	8dBm/3KHz

7.2. Test Setup



7.3. Test Procedure

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 1.5xDTSS BW
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

7.4. Test Data

Pass

Please refer to Appendix D of the Appendix Test Data.

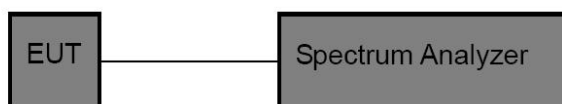


8. 100kHz Bandwidth of Frequency Band Edge Requirement

8.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d)
Test Limit	In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

8.2. Test Setup



8.3. Test Procedure

Using the following spectrum analyzer setting:

1. Set the RBW = 100KHz.
2. Set the VBW = 300KHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

8.4. Test Data

Pass

Please refer to Appendix E&F of the Appendix Test Data.

Sidebands are tested using the conduction method

Pass

Please refer to Appendix H of the Appendix Test Data.



9. Antenna Requirement

9.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /247(c)
Requirement	1) 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 2) 15.247(c) (1)(i) requirement: Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

9.2. Antenna Connected Construction

The antenna is a External antenna which permanently attached, and the best case gain of the antenna is 2dBi It complies with the standard requirement.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

APPENDIX IV -- Test Data

Please refer to separated files Appendix IV -- Test Data

----- End of Report -----

