APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
findbox GmbH

SmartESL Accesspoint
Model No.: 500300

FCC ID: 2AJDH-500300

Prepared for	:	findbox GmbH
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Report No.	:	ATE20161073
Date of Test	:	May 31-June 1, 2016
Date of Report	:	July 10, 2016

TABLE OF CONTENTS

Description Page

Test Report Certification
1. GENERAL INFORMATION 5
1.1. Description of Device (EUT) 5
1.2. Accessory and Auxiliary Equipment 5
1.3. Carrier Frequency of Channels 6
1.4. Description of Test Facility 7
1.5. Measurement Uncertainty 7
2. MEASURING DEVICE AND TEST EQUIPMENT 8
3. OPERATION OF EUT DURING TESTING 9
3.1. Operating Mode 9
3.2. Configuration and peripherals 9
4. TEST PROCEDURES AND RESULTS 10
5. POWER LINE CONDUCTED MEASUREMENT 11
5.1. Block Diagram of Test Setup 11
5.2. Power Line Conducted Emission Measurement Limits 11
5.3. Configuration of EUT on Measurement 11
5.4. Operating Condition of EUT 11
5.5. Test Procedure 12
5.6. Power Line Conducted Emission Measurement Results 12
6. 20DB BANDWIDTH TEST 19
6.1. Block Diagram of Test Setup 19
6.2. The Requirement For Section 15.247(a)(1) 19
6.3. EUT Configuration on Measurement 19
6.4. Operating Condition of EUT 19
6.5. Test Procedure 19
6.6. Test Result 20
7. CARRIER FREQUENCY SEPARATION TEST 23
7.1. Block Diagram of Test Setup 23
7.2. The Requirement For Section 15.247(a)(1) 23
7.3. EUT Configuration on Measurement 23
7.4. Operating Condition of EUT 23
7.5. Test Procedure 24
7.6. Test Result 24
8. NUMBER OF HOPPING FREQUENCY TEST 27
8.1. Block Diagram of Test Setup 27
8.2. Limit 27
8.3. EUT Configuration on Measurement 27
8.4. Operating Condition of EUT 27
8.5. Test Procedure 27
8.6. Test Result 28
9. DWELL TIME TEST 29
9.1. Block Diagram of Test Setup 29
9.2. Limit 29
9.3. EUT Configuration on Measurement 29

9.4. Operating Condition of EUT 29
9.5. Test Procedure 29
9.6. Photos of Dwell time Measurement 30
9.7. Test Result 30
10. MAXIMUM PEAK OUTPUT POWER TEST 32
10.1. Block Diagram of Test Setup 32
10.2. Limit 32
10.3. EUT Configuration on Measurement 32
10.4. Operating Condition of EUT 32
10.5. Test Procedure 32
10.6. Test Result 33
11. RADIATED EMISSION TEST 35
11.1. Block Diagram of Test Setup 35
11.2. The Limit For Section 15.247(d) 36
11.3. Restricted bands of operation 37
11.4. Configuration of EUT on Measurement 37
11.5. Test Procedure 37
11.6. The Field Strength of Radiation Emission Measurement Results 38
12. BAND EDGE COMPLIANCE TEST 51
12.1. Block Diagram of Test Setup 51
12.2. The Requirement For Section 15.247(d) 51
12.3. EUT Configuration on Measurement 51
12.4. Operating Condition of EUT 51
12.5. Test Procedure 52
12.6. Test Result 52
13. ANTENNA REQUIREMENT 54
13.1. The Requirement 54
13.2. Antenna Construction 54

Test Report Certification

Applicant	:	findbox GmbH
Manufacturer	:	findbox GmbH
EUT Description	:	SmartESL Accesspoint
Model No.	:	500300
Trade Mark	:	N/A

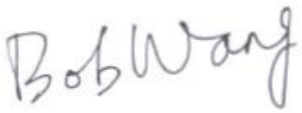
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2015
ANSI C63.10: 2013

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : May 31-June 1, 2016
Date of Report: July 10, 2016

Prepared by : 
(Bob Wang, Engineer)

Approved & Authorized Signer : 
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	SmartESL Accesspoint
Model Number	:	500300
Trade Mark	:	N/A
Frequency Range	:	902.5MHz-927.5MHz
Number of Channels	:	101
Antenna Gain	:	2dBi
Antenna type	:	External Antenna
Power Supply	:	DC 5.1V (Power by Adapter)
Adapter	:	MODEL: DSA-13PFC-05 FCA INPUT: 100-240V~0.5A OUTPUT: 5.1V/2.5A
Modulation mode	:	FSK
Applicant	:	findbox GmbH
Address	:	Bundesstrasse 16, Ettenheim 77955, Baden-Wuerttemberg, Germany
Manufacuter	:	findbox GmbH
Address	:	Bundesstrasse 16, Ettenheim 77955, Baden-Wuerttemberg, Germany
Date of sample received	:	May 30, 2016
Date of Test	:	May 31-June 1, 2016

1.2.Accessory and Auxiliary Equipment

N/A

1.3.Carrier Frequency of Channels

Channel	Freq (Mhz)	Channel	Freq (Mhz)	Channel	Freq (Mhz)
		34	910,750	68	919,250
1	902,500	35	911,000	69	919,500
2	902,750	36	911,250	70	919,750
3	903,000	37	911,500	71	920,000
4	903,250	38	911,750	72	920,250
5	903,500	39	912,000	73	920,500
6	903,750	40	912,250	74	920,750
7	904,000	41	912,500	75	921,000
8	904,250	42	912,750	76	921,250
9	904,500	43	913,000	77	921,500
10	904,750	44	913,250	78	921,750
11	905,000	45	913,500	79	922,000
12	905,250	46	913,750	80	922,250
13	905,500	47	914,000	81	922,500
14	905,750	48	914,250	82	922,750
15	906,000	49	914,500	83	923,000
16	906,250	50	914,750	84	923,250
17	906,500	51	915,000	85	923,500
18	906,750	52	915,250	86	923,750
19	907,000	53	915,500	87	924,000
20	907,250	54	915,750	88	924,250
21	907,500	55	916,000	89	924,500
22	907,750	56	916,250	90	924,750
23	908,000	57	916,500	91	925,000
24	908,250	58	916,750	92	925,250
25	908,500	59	917,000	93	925,500
26	908,750	60	917,250	94	925,750
27	909,000	61	917,500	95	926,000
28	909,250	62	917,750	96	926,250
29	909,500	63	918,000	97	926,500
30	909,750	64	918,250	98	926,750
31	910,000	65	918,500	99	927,000
32	910,250	66	918,750	100	927,250
33	910,500	67	919,000	101	927,500

1.4.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 9, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 9, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 9, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 9, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 12, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 9, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 9, 2016	Jan. 09, 2017
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 9, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 9, 2016	Jan. 09, 2017

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode
Low Channel: 902.5MHz
Middle Channel: 914.75MHz
High Channel: 927.5MHz
Hopping

3.2.Configuration and peripherals

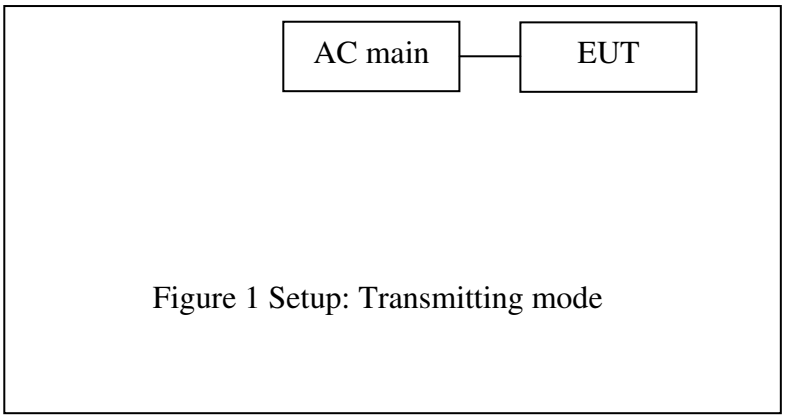


Figure 1 Setup: Transmitting mode

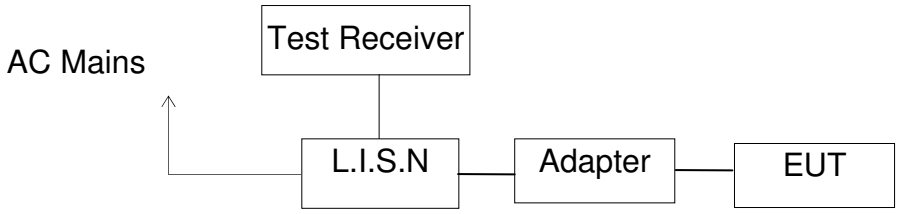
(EUT: SmartESL Accesspoint)

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1.Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

5.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

5.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in test mode and measure it.

5.5.Test Procedure

The EUT is put on the plane 0.1 m high above the ground by insulating support and 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 lines 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 ANSI C63.10 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

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

5.6.Power Line Conducted Emission Measurement Results

PASS.

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

Test mode : On(AC 120V/60Hz)
EUT mode : 500300

MEASUREMENT RESULT: "ESL04_fin"

2016-6-1 15:14

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	42.40	10.3	66	23.6	QP	N	GND
0.344000	32.00	11.1	59	27.1	QP	N	GND
0.470000	34.80	11.4	57	21.7	QP	N	GND
0.492000	34.50	11.5	56	21.6	QP	N	GND
1.520000	28.50	11.6	56	27.5	QP	N	GND
11.405000	20.40	11.9	60	39.6	QP	N	GND

MEASUREMENT RESULT: "ESL04_fin2"

2016-6-1 15:14

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	27.10	10.3	56	28.9	AV	N	GND
0.344000	24.60	11.1	49	24.5	AV	N	GND
0.470000	26.80	11.4	47	19.7	AV	N	GND
0.492000	28.80	11.5	46	17.3	AV	N	GND
1.520000	23.10	11.6	46	22.9	AV	N	GND
11.405000	14.50	11.9	50	35.5	AV	N	GND

MEASUREMENT RESULT: "ESL03_fin"

2016-6-1 15:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	41.70	10.4	66	23.9	QP	L1	GND
0.472000	37.50	11.4	57	19.0	QP	L1	GND
0.490000	37.70	11.5	56	18.5	QP	L1	GND
0.810000	31.20	11.6	56	24.8	QP	L1	GND
1.738000	27.90	11.6	56	28.1	QP	L1	GND
11.270000	19.00	11.9	60	41.0	QP	L1	GND

MEASUREMENT RESULT: "ESL03_fin2"

2016-6-1 15:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	26.30	10.4	56	29.3	AV	L1	GND
0.472000	31.10	11.4	47	15.4	AV	L1	GND
0.490000	30.90	11.5	46	15.3	AV	L1	GND
0.810000	23.90	11.6	46	22.1	AV	L1	GND
1.738000	22.20	11.6	46	23.8	AV	L1	GND
11.270000	13.00	11.9	50	37.0	AV	L1	GND

Test mode : On (AC 240V/60Hz)
EUT mode : 500300

MEASUREMENT RESULT: "ESL02_fin"

2016-6-1 15:08

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.160000	37.90	10.4	66	27.6	QP	L1	GND
0.272000	32.40	10.9	61	28.7	QP	L1	GND
0.514000	32.90	11.5	56	23.1	QP	L1	GND
1.202000	29.60	11.6	56	26.4	QP	L1	GND
2.810000	24.20	11.7	56	31.8	QP	L1	GND
11.144000	19.50	11.9	60	40.5	QP	L1	GND

MEASUREMENT RESULT: "ESL02_fin2"

2016-6-1 15:08

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.160000	25.50	10.4	56	30.0	AV	L1	GND
0.272000	23.90	10.9	51	27.2	AV	L1	GND
0.514000	26.10	11.5	46	19.9	AV	L1	GND
1.202000	23.60	11.6	46	22.4	AV	L1	GND
2.810000	16.80	11.7	46	29.2	AV	L1	GND
11.144000	12.60	11.9	50	37.4	AV	L1	GND

MEASUREMENT RESULT: "ESL01_fin"

2016-6-1 15:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	37.50	10.4	65	27.9	QP	N	GND
0.214000	33.80	10.7	63	29.2	QP	N	GND
0.510000	33.40	11.5	56	22.6	QP	N	GND
1.394000	28.60	11.6	56	27.4	QP	N	GND
2.738000	26.00	11.7	56	30.0	QP	N	GND
11.031500	19.30	11.9	60	40.7	QP	N	GND

MEASUREMENT RESULT: "ESL01_fin2"

2016-6-1 15:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	25.20	10.4	55	30.2	AV	N	GND
0.214000	23.80	10.7	53	29.2	AV	N	GND
0.510000	26.20	11.5	46	19.8	AV	N	GND
1.394000	23.30	11.6	46	22.7	AV	N	GND
2.738000	19.00	11.7	46	27.0	AV	N	GND
11.031500	12.60	11.9	50	37.4	AV	N	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD

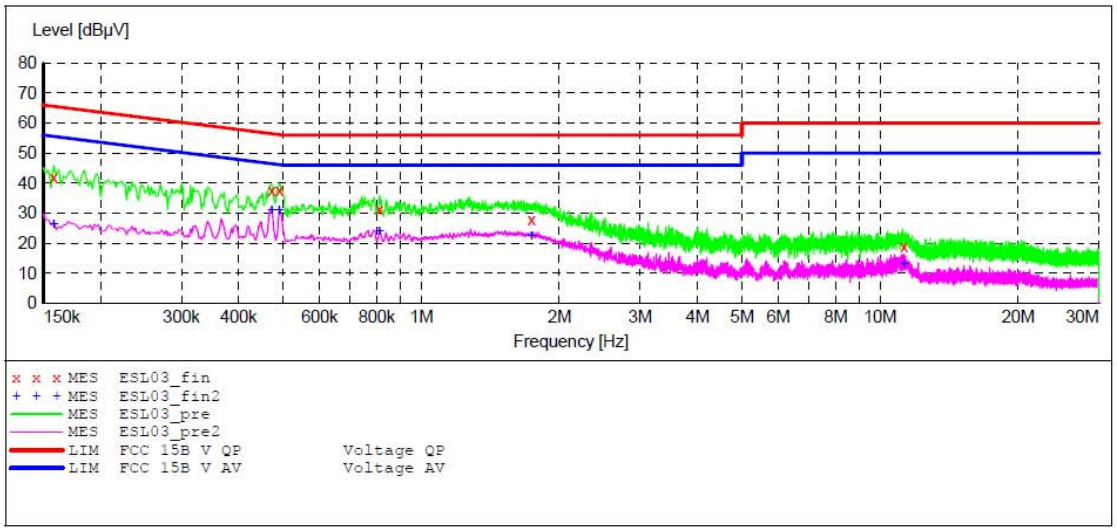
CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  SmartESL Accesspoint  M/N:500300
Manufacturer:         findbox GmbH
Operating Condition:  ON
Test Site:            2#Shielding Room
Operator:             star
Test Specification:   L  120V/60Hz
Comment:              Report No.:ATE20161077
Start of Test:        2016-6-1 / 15:09:00
```

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "ESL03_fin"

2016-6-1 15:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	41.70	10.4	66	23.9	QP	L1	GND
0.472000	37.50	11.4	57	19.0	QP	L1	GND
0.490000	37.70	11.5	56	18.5	QP	L1	GND
0.810000	31.20	11.6	56	24.8	QP	L1	GND
1.738000	27.90	11.6	56	28.1	QP	L1	GND
11.270000	19.00	11.9	60	41.0	QP	L1	GND

MEASUREMENT RESULT: "ESL03_fin2"

2016-6-1 15:11

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	26.30	10.4	56	29.3	AV	L1	GND
0.472000	31.10	11.4	47	15.4	AV	L1	GND
0.490000	30.90	11.5	46	15.3	AV	L1	GND
0.810000	23.90	11.6	46	22.1	AV	L1	GND
1.738000	22.20	11.6	46	23.8	AV	L1	GND
11.270000	13.00	11.9	50	37.0	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

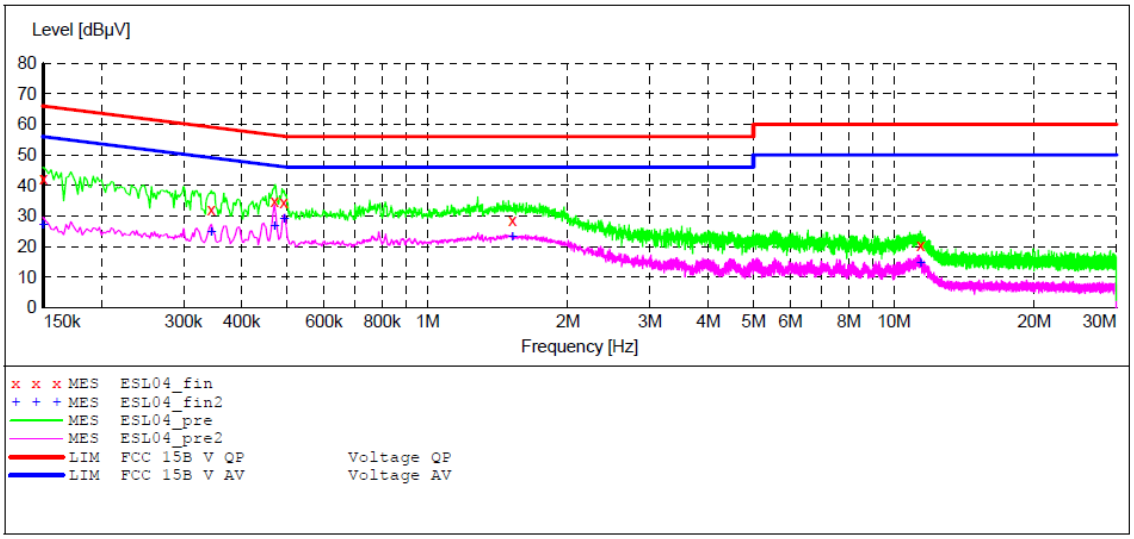
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: SmartESL Accesspoint M/N:500300
Manufacturer: findbox GmbH
Operating Condition: ON
Test Site: 2#Shielding Room
Operator: star
Test Specification: N 120V/60Hz
Comment: Report No.:ATE20161077
Start of Test: 2016-6-1 / 15:11:54

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "ESL04_fin"

2016-6-1 15:14

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	42.40	10.3	66	23.6	QP	N	GND
0.344000	32.00	11.1	59	27.1	QP	N	GND
0.470000	34.80	11.4	57	21.7	QP	N	GND
0.492000	34.50	11.5	56	21.6	QP	N	GND
1.520000	28.50	11.6	56	27.5	QP	N	GND
11.405000	20.40	11.9	60	39.6	QP	N	GND

MEASUREMENT RESULT: "ESL04_fin2"

2016-6-1 15:14

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	27.10	10.3	56	28.9	AV	N	GND
0.344000	24.60	11.1	49	24.5	AV	N	GND
0.470000	26.80	11.4	47	19.7	AV	N	GND
0.492000	28.80	11.5	46	17.3	AV	N	GND
1.520000	23.10	11.6	46	22.9	AV	N	GND
11.405000	14.50	11.9	50	35.5	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

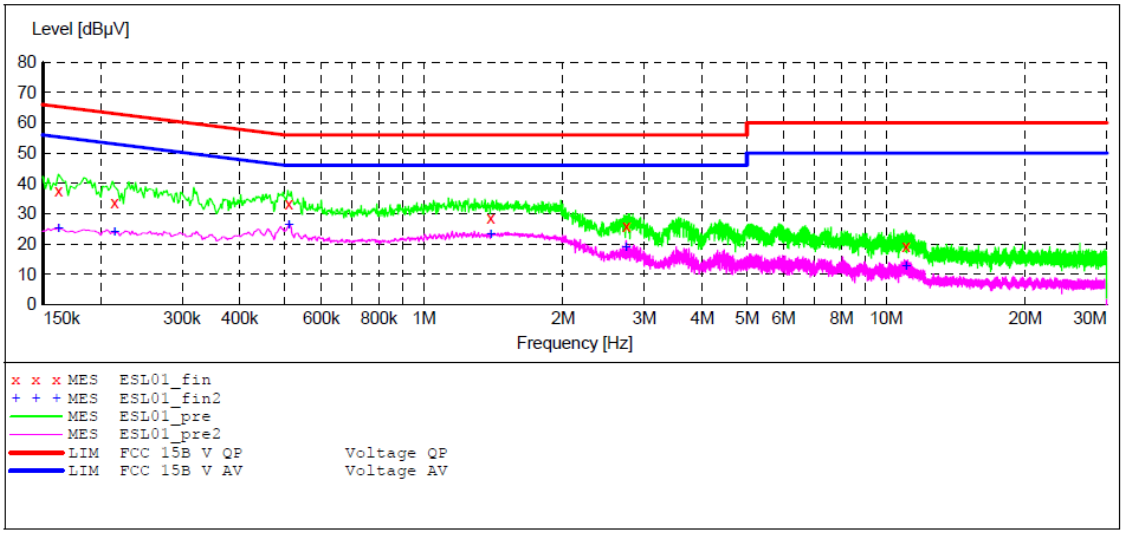
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: SmartESL Accesspoint M/N:500300
Manufacturer: findbox GmbH
Operating Condition: ON
Test Site: 2#Shielding Room
Operator: star
Test Specification: N 240V/60Hz
Comment: Report No.:ATE20161077
Start of Test: 2016-6-1 / 15:00:00

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "ESL01_fin"

2016-6-1 15:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	37.50	10.4	65	27.9	QP	N	GND
0.214000	33.80	10.7	63	29.2	QP	N	GND
0.510000	33.40	11.5	56	22.6	QP	N	GND
1.394000	28.60	11.6	56	27.4	QP	N	GND
2.738000	26.00	11.7	56	30.0	QP	N	GND
11.031500	19.30	11.9	60	40.7	QP	N	GND

MEASUREMENT RESULT: "ESL01_fin2"

2016-6-1 15:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	25.20	10.4	55	30.2	AV	N	GND
0.214000	23.80	10.7	53	29.2	AV	N	GND
0.510000	26.20	11.5	46	19.8	AV	N	GND
1.394000	23.30	11.6	46	22.7	AV	N	GND
2.738000	19.00	11.7	46	27.0	AV	N	GND
11.031500	12.60	11.9	50	37.4	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

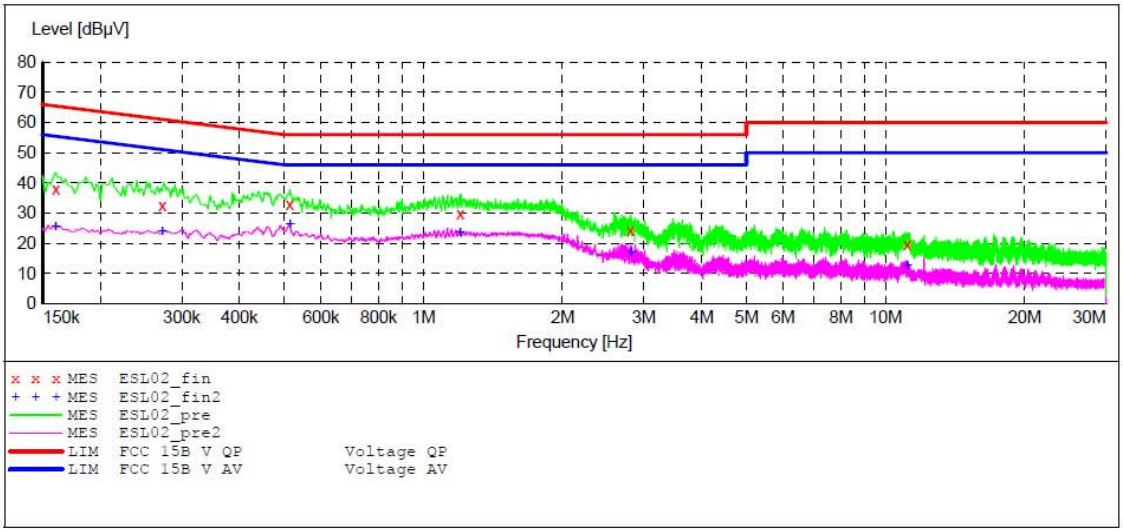
CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                 SmartESL Accesspoint  M/N:500300
Manufacturer:        findbox GmbH
Operating Condition: ON
Test Site:           2#Shielding Room
Operator:            star
Test Specification:  L  240V/60Hz
Comment:             Report No.:ATE20161077
Start of Test:       2016-6-1 / 15:06:11
```

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "ESL02_fin"

2016-6-1 15:08

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.160000	37.90	10.4	66	27.6	QP	L1	GND
0.272000	32.40	10.9	61	28.7	QP	L1	GND
0.514000	32.90	11.5	56	23.1	QP	L1	GND
1.202000	29.60	11.6	56	26.4	QP	L1	GND
2.810000	24.20	11.7	56	31.8	QP	L1	GND
11.144000	19.50	11.9	60	40.5	QP	L1	GND

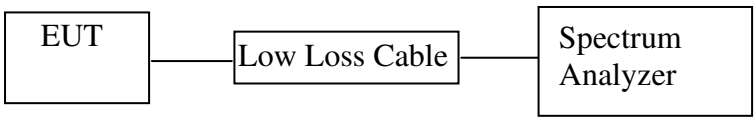
MEASUREMENT RESULT: "ESL02_fin2"

2016-6-1 15:08

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.160000	25.50	10.4	56	30.0	AV	L1	GND
0.272000	23.90	10.9	51	27.2	AV	L1	GND
0.514000	26.10	11.5	46	19.9	AV	L1	GND
1.202000	23.60	11.6	46	22.4	AV	L1	GND
2.810000	16.80	11.7	46	29.2	AV	L1	GND
11.144000	12.60	11.9	50	37.4	AV	L1	GND

6. 20DB BANDWIDTH TEST

6.1.Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

6.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

6.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4.Operating Condition of EUT

6.4.1.Setup the EUT and simulator as shown as Section 5.1.

6.4.2.Turn on the power of all equipment.

6.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 902.5-927.5MHz. We select 902.5MHz, 914.75MHz, and 927.5MHz TX frequency to transmit.

6.5.Test Procedure

6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.

6.5.3.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

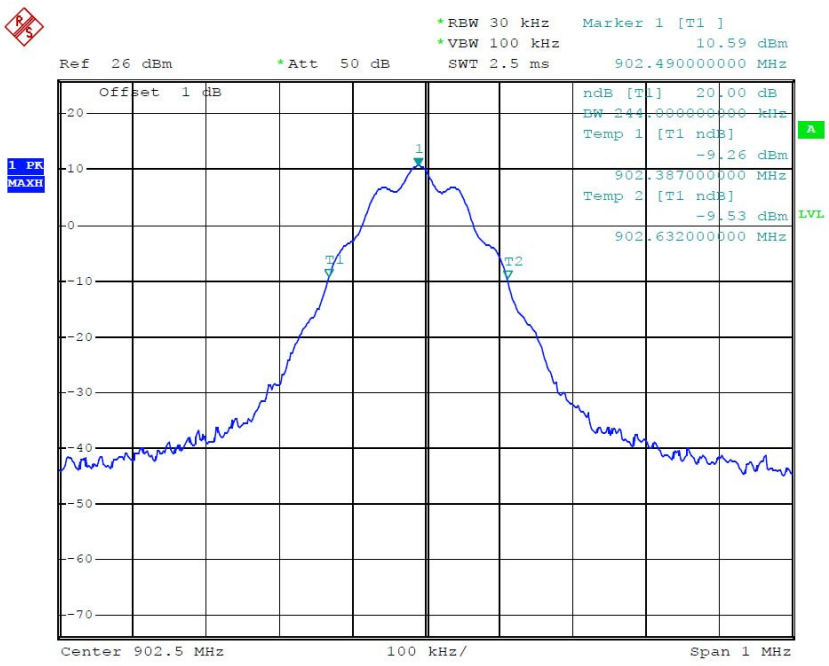
6.6.Test Result

Channel	Frequency (MHz)	FSK 20dB Bandwidth (MHz)	Limit (MHz)	Result
Low	902.5	0.244	0.5	Pass
Middle	914.75	0.244	0.5	Pass
High	927.5	0.242	0.5	Pass

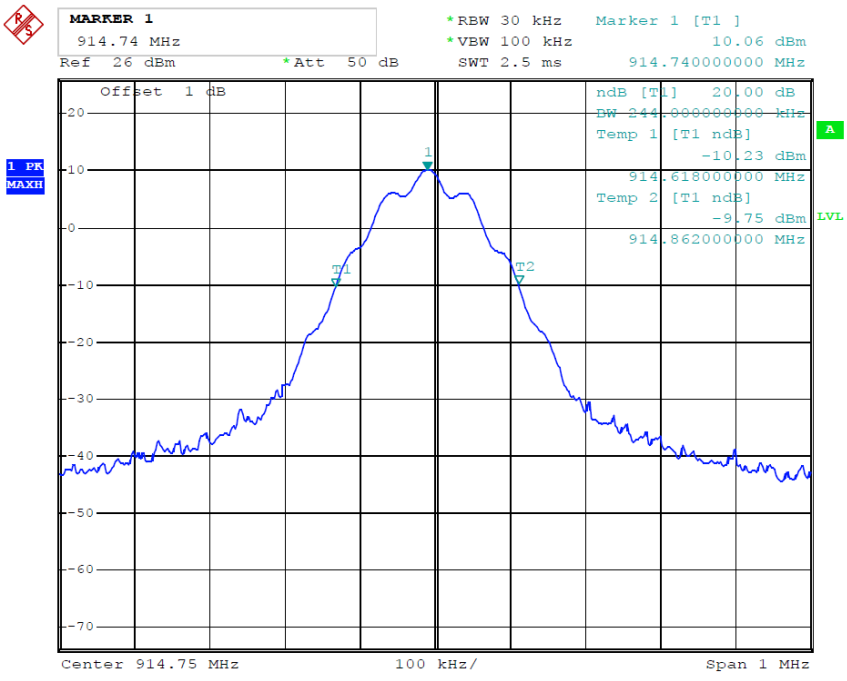
The spectrum analyzer plots are attached as below.

FSK Mode

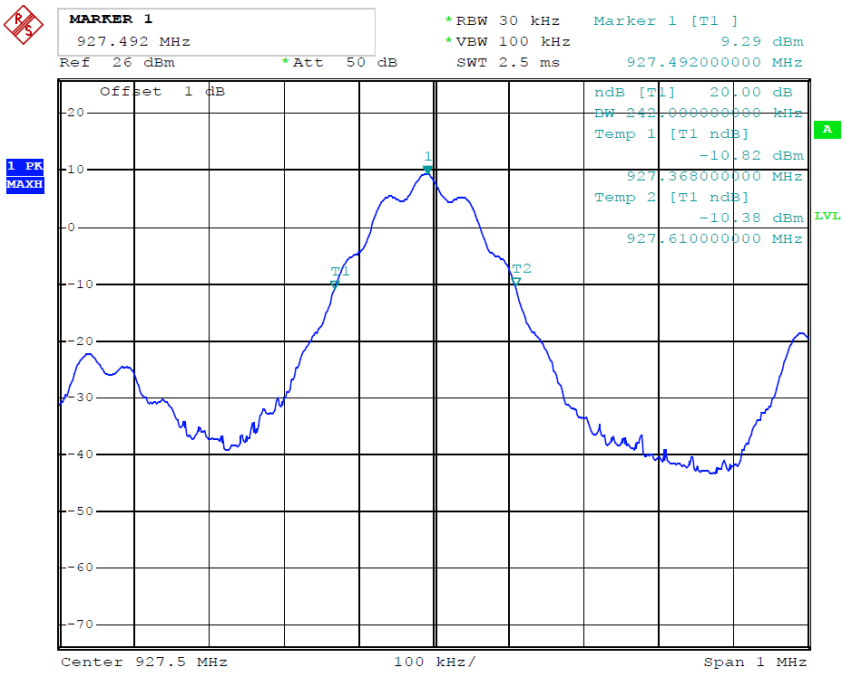
Low channel



Middle channel

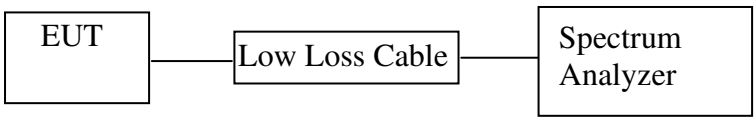


High channel



7. CARRIER FREQUENCY SEPARATION TEST

7.1.Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

7.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 902-928 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 6.1.

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 902.5-927.5MHz. We select 902.5MHz, 914.75MHz, and 927.5MHz TX frequency to transmit.

7.5.Test Procedure

7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz. Adjust Span to 500kHz.

7.5.3.Set the adjacent channel of the EUT maxhold another trace.

7.5.4.Measurement the channel separation

7.6.Test Result

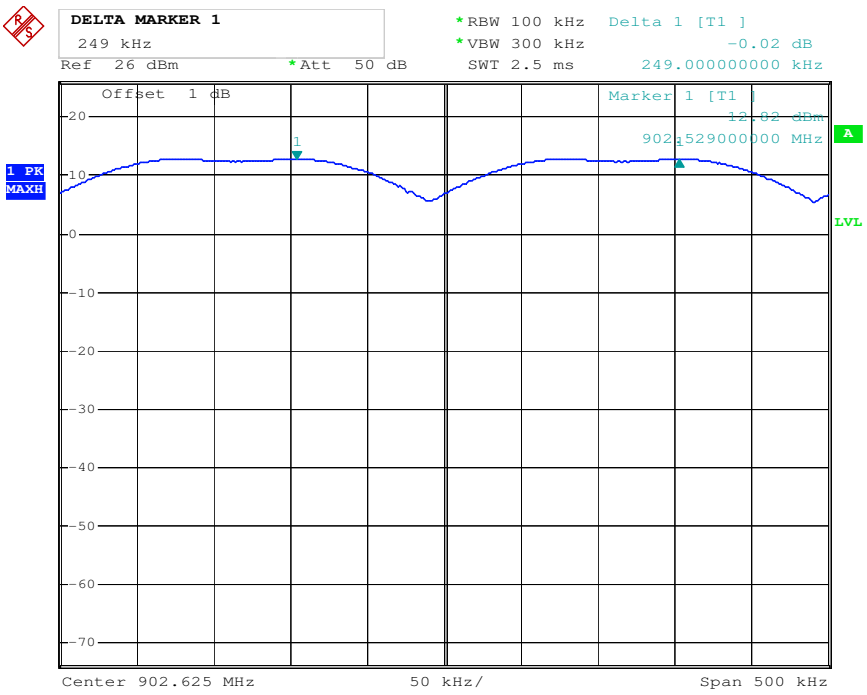
FSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Result
Low	902.5	0.248	PASS
	902.75		
Middle	914.50	0.249	PASS
	914.75		
High	927.25	0.249	PASS
	927.5		

The spectrum analyzer plots are attached as below.

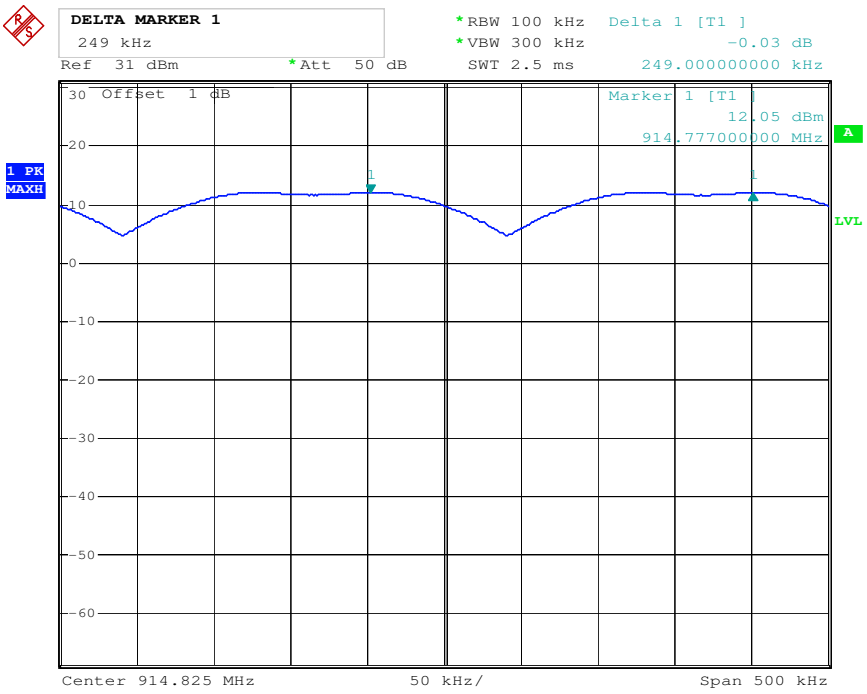
FSK Mode

Low channel



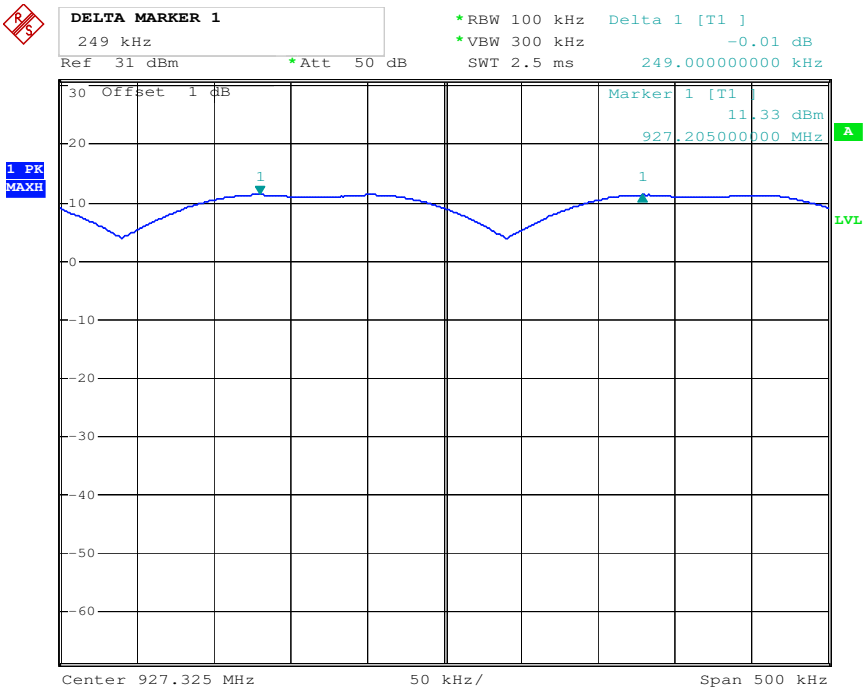
Date: 1.JUN.2016 22:20:30

Middle channel



Date: 1.JUN.2016 23:16:01

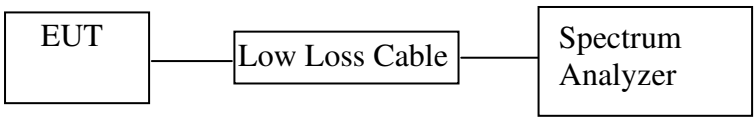
High channel



Date: 1.JUN.2016 23:17:08

8. NUMBER OF HOPPING FREQUENCY TEST

8.1.Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

8.2.Limit

If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the sys-tem shall use at least 25 hopping fre-quencies and the average time of occu-pancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

8.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 7.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX (Hopping on) modes measure it.

8.5.Test Procedure

8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2.Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz.

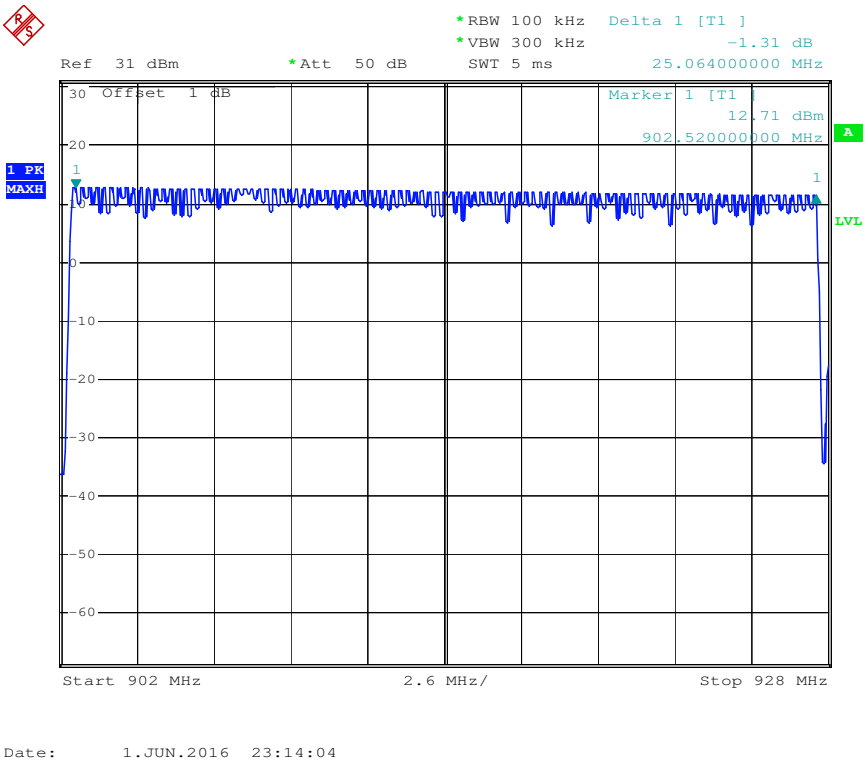
8.5.3.Max hold, view and count how many channel in the band.

8.6.Test Result

Total number of hopping channel	Measurement result(CH)	Limit(CH)
	101	≥50

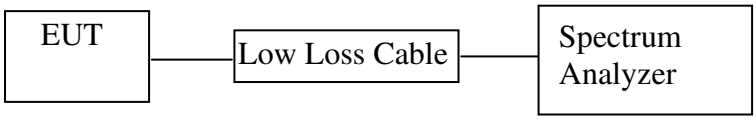
The spectrum analyzer plots are attached as below.

Number of hopping channels(FSK)



9. DWELL TIME TEST

9.1.Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

9.2.Limit

if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

9.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4.Operating Condition of EUT

9.4.1.Setup the EUT and simulator as shown as Section 8.1.

9.4.2.Turn on the power of all equipment.

9.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 902.5-927.5MHz. We select 902.5MHz, 914.75MHz, and 927.5MHz TX frequency to transmit.

9.5.Test Procedure

9.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

9.5.2.Set center frequency of spectrum analyzer = operating frequency.

9.5.3.Set the spectrum analyzer as RBW=100kHz, VBW=300kHz, Span=0Hz, Adjust Sweep=20s. Get the pulse time.

9.5.4.Repeat above procedures until all frequency measured were complete.

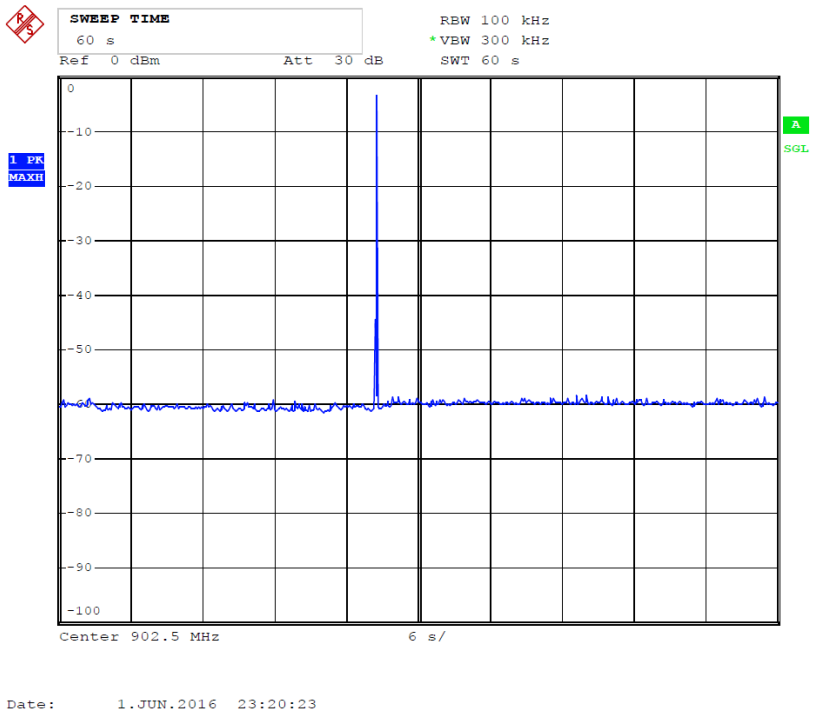
9.6.Photos of Dwell time Measurement

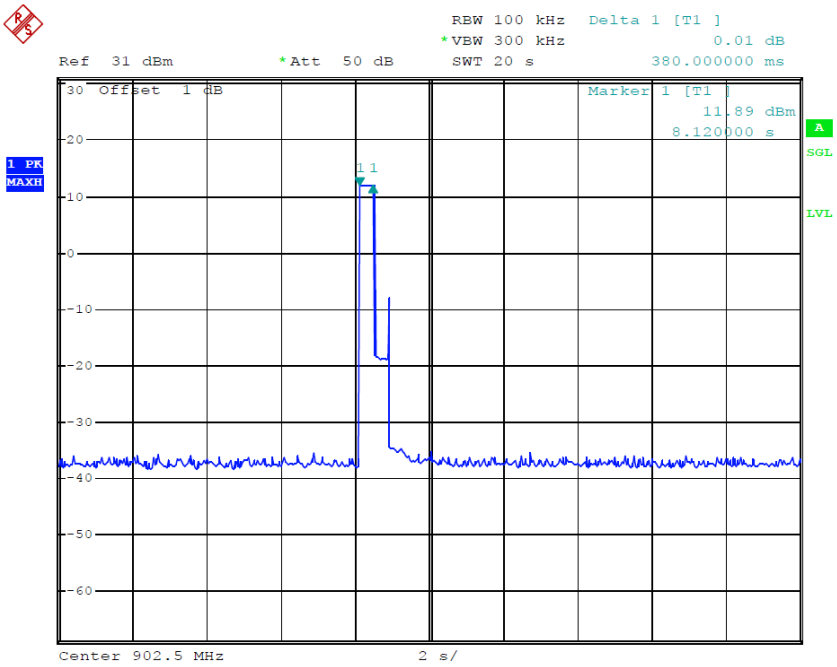
In the connection mode RFID uses 101 channels,As defined in 15.247,a 1 I,the limit for time of occupancy is 0.4s over time of 20s.

9.7.Test Result

Modulation Mode	Channel Frequency (MHz)	No. of burst	Pulse Width (ms)	Dwell time (ms)	Limit (ms)	Verdict
FSK	902.5	1	380	380	400	Pass

Dwell Time=No. of burst*Pulse Width

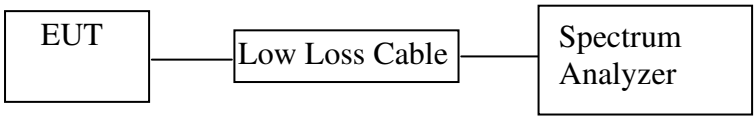




Date: 1.JUN.2016 23:26:23

10. MAXIMUM PEAK OUTPUT POWER TEST

10.1. Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

10.2. Limit

For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hop-ping channels, but at least 25 hopping channels, as permitted under para-graph (a)(1)(i) of this section. the maximum output power should not exceed 29dBm.

10.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.4. Operating Condition of EUT

10.4.1. Setup the EUT and simulator as shown as Section 9.1.

10.4.2. Turn on the power of all equipment.

10.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 902.5-927.5MHz. We select 902.5MHz, 914.75MHz, and 927.5MHz TX frequency to transmit.

10.5. Test Procedure

10.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

10.5.2. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for FSK mode

10.5.3. Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz for other mode

10.5.4. Measurement the maximum peak output power.

10.6.Test Result

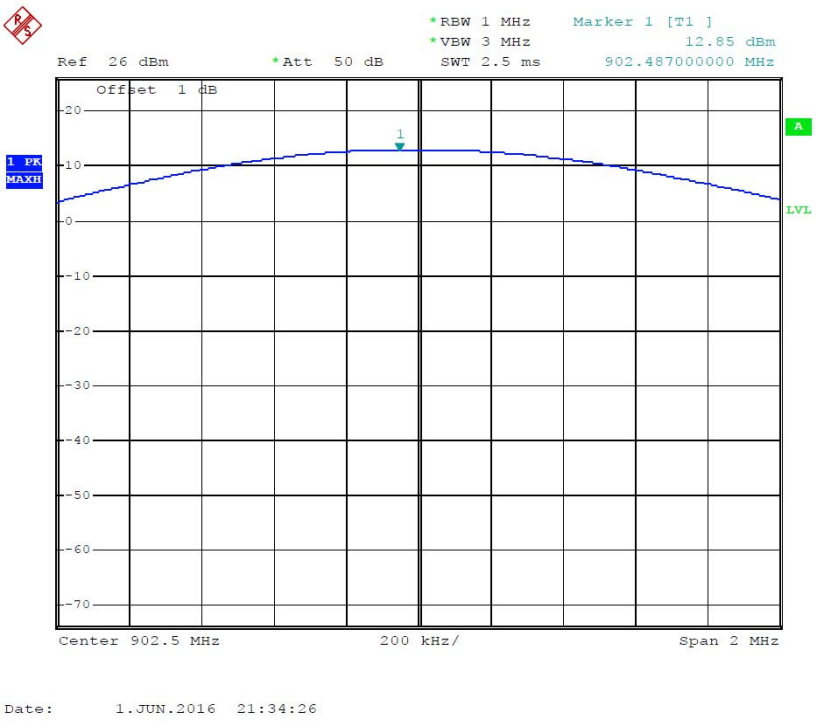
FSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	902.5	12.85/0.0193	30/ 1
Middle	914.75	12.27/0.0169	30/ 1
High	927.5	11.48 /0.0141	30/ 1

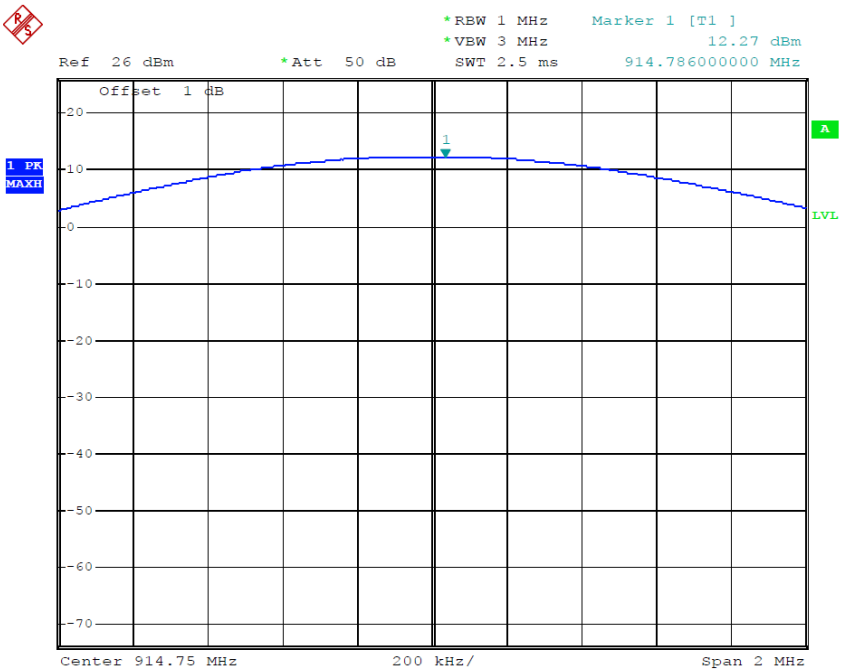
The spectrum analyzer plots are attached as below.

FSK Mode

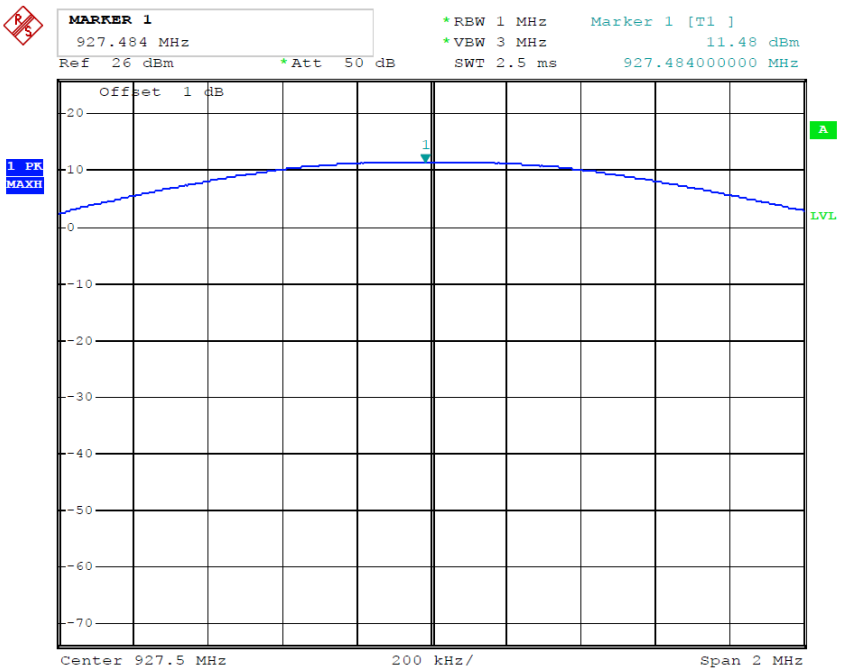
Low channel



Middle channel



High channel



11.RADIATED EMISSION TEST

11.1.Block Diagram of Test Setup

11.1.1.Block diagram of connection between the EUT and peripherals

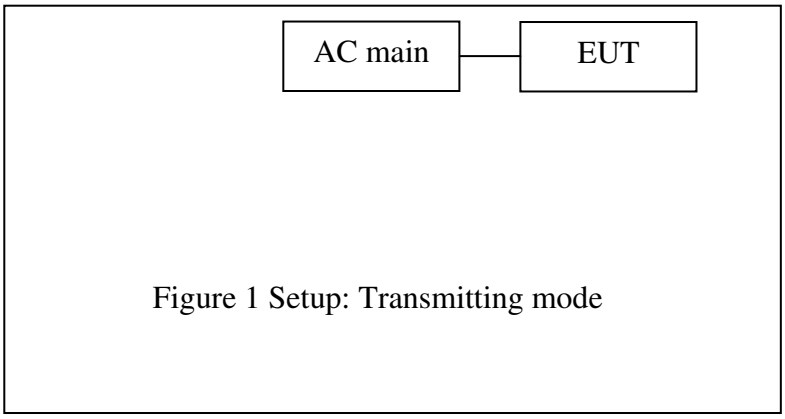
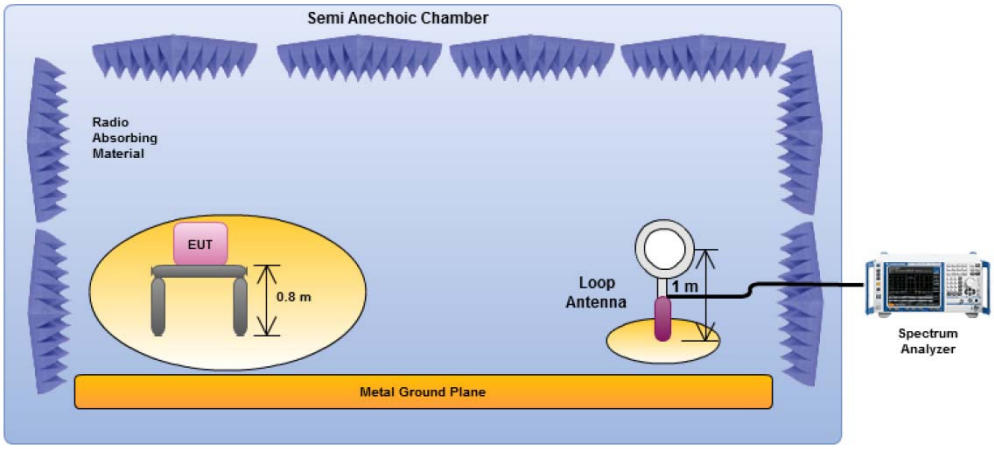


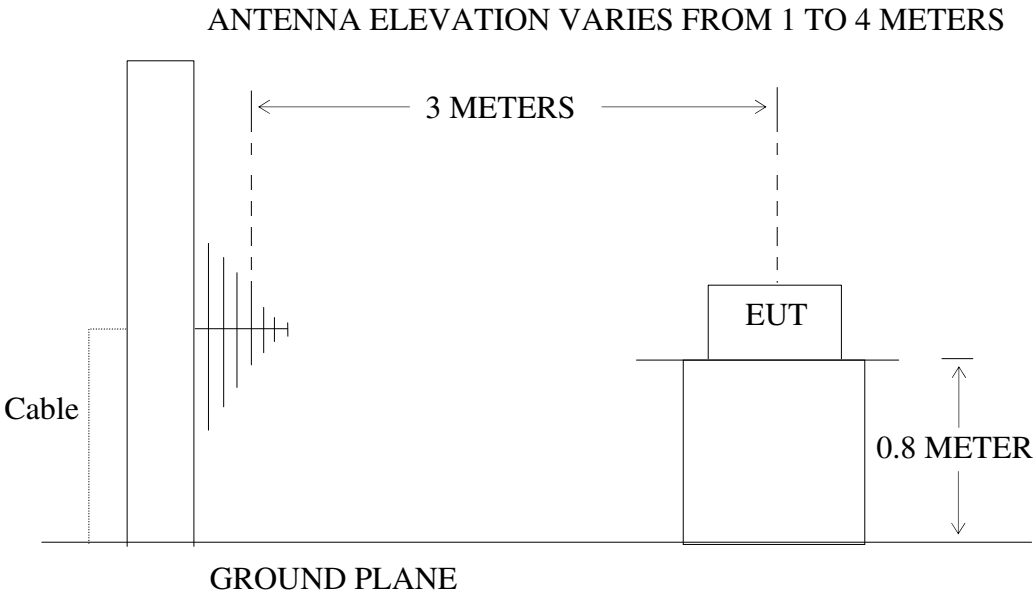
Figure 1 Setup: Transmitting mode

11.1.2.Semi-Anechoic Chamber Test Setup Diagram

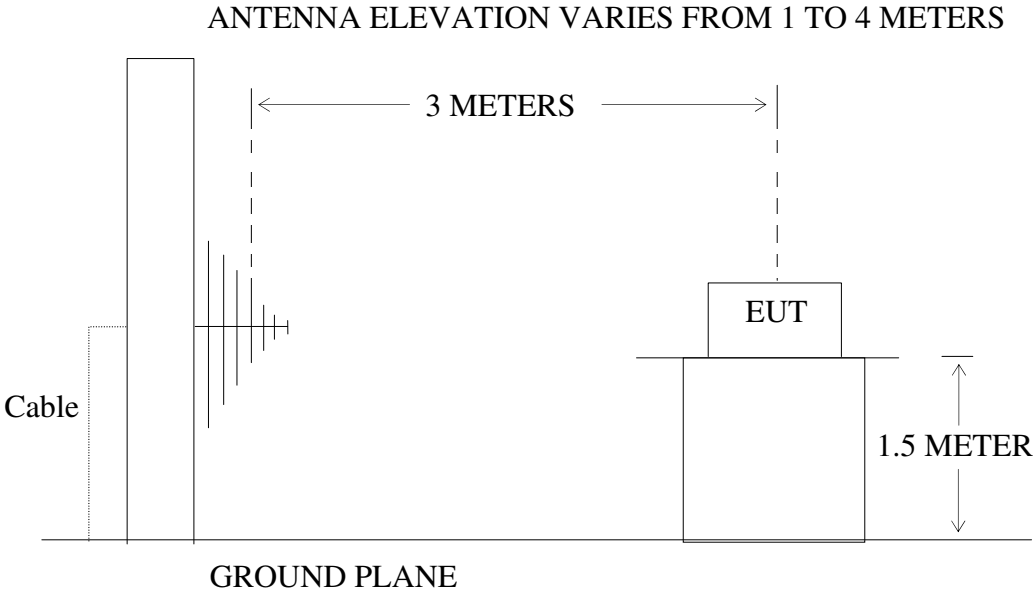
Below 30MHz



30MHz-1GHz



Above 1GHz



11.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the

transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.Restricted bands of operation

11.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]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	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

11.4.Configuration of EUT on Measurement

The equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

11.6.The Field Strength of Radiation Emission Measurement Results

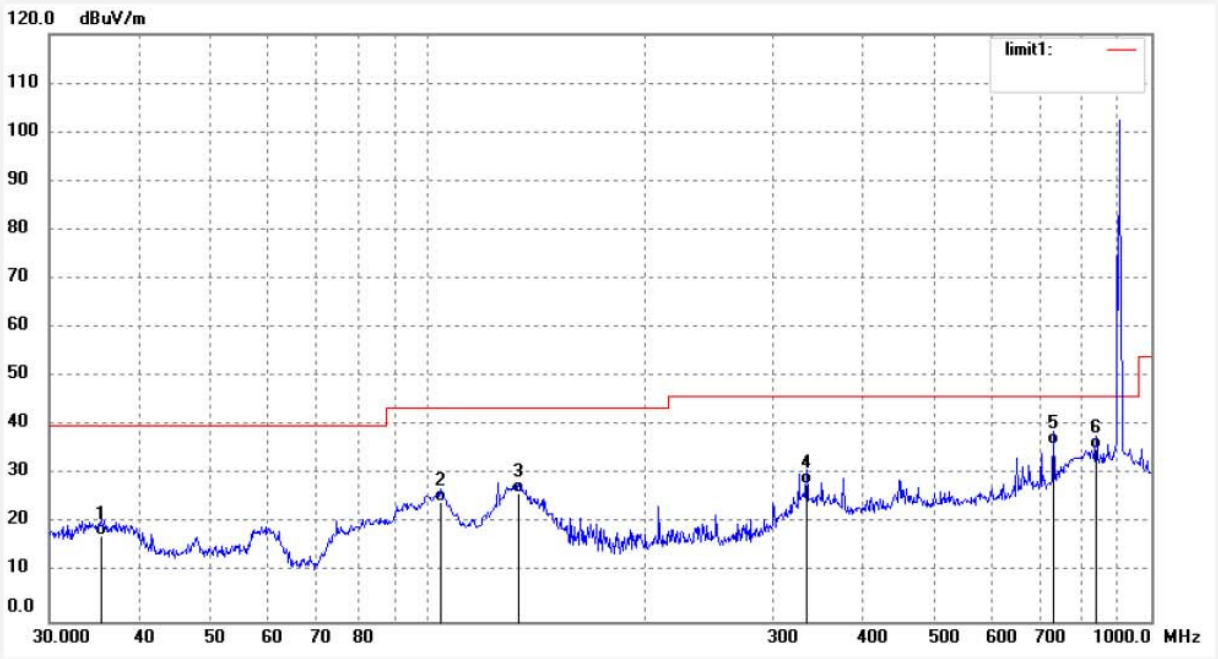
Below 1GHz

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2015 #1244
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 902.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:35:42
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.3750	28.04	-10.50	17.54	40.00	-22.46	QP			
2	104.1701	38.14	-13.81	24.33	43.50	-19.17	QP			
3	133.6184	40.21	-14.02	26.19	43.50	-17.31	QP			
4	333.6865	36.47	-8.28	28.19	46.00	-17.81	QP			
5	731.9202	37.41	-1.33	36.08	46.00	-9.92	QP			
6	839.1816	34.57	0.64	35.21	46.00	-10.79	QP			

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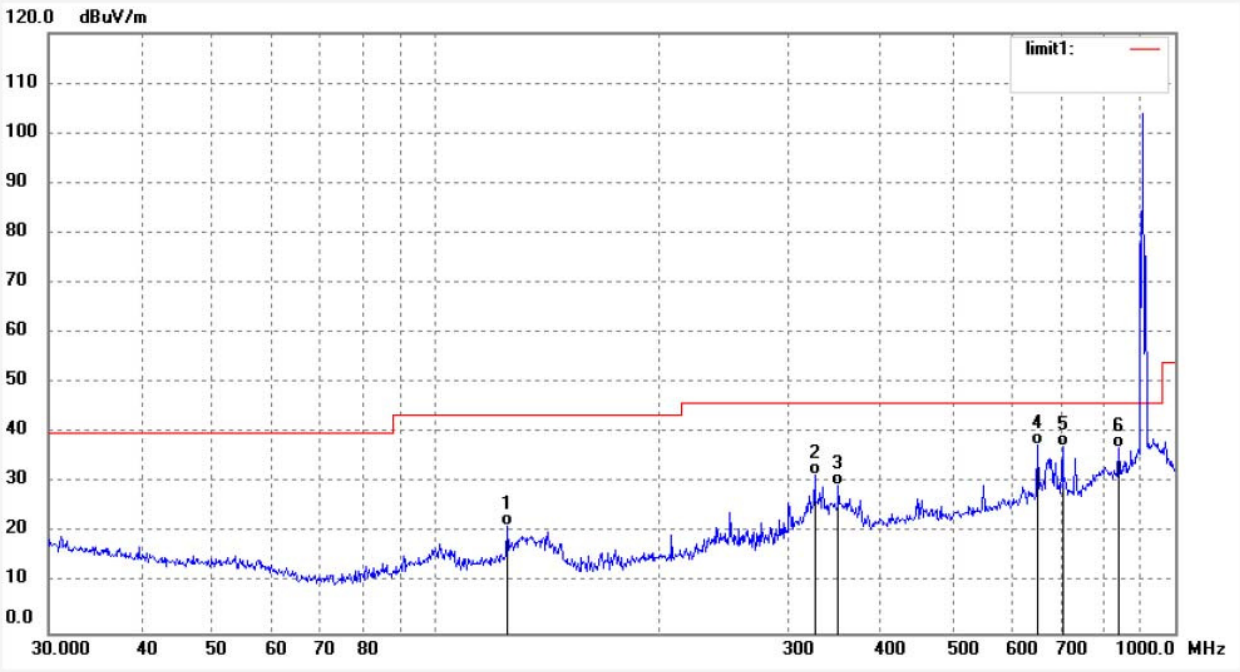
Job No.: STAR2015 #1245
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 902.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:37:22
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.0066	35.29	-13.73	21.56	43.50	-21.94	QP			
2	325.5957	40.21	-8.51	31.70	46.00	-14.30	QP			
3	350.4768	37.35	-7.75	29.60	46.00	-16.40	QP			
4	651.9415	40.19	-2.40	37.79	46.00	-8.21	QP			
5	704.2259	39.05	-1.66	37.39	46.00	-8.61	QP			
6	839.1816	36.44	0.64	37.08	46.00	-8.92	QP			

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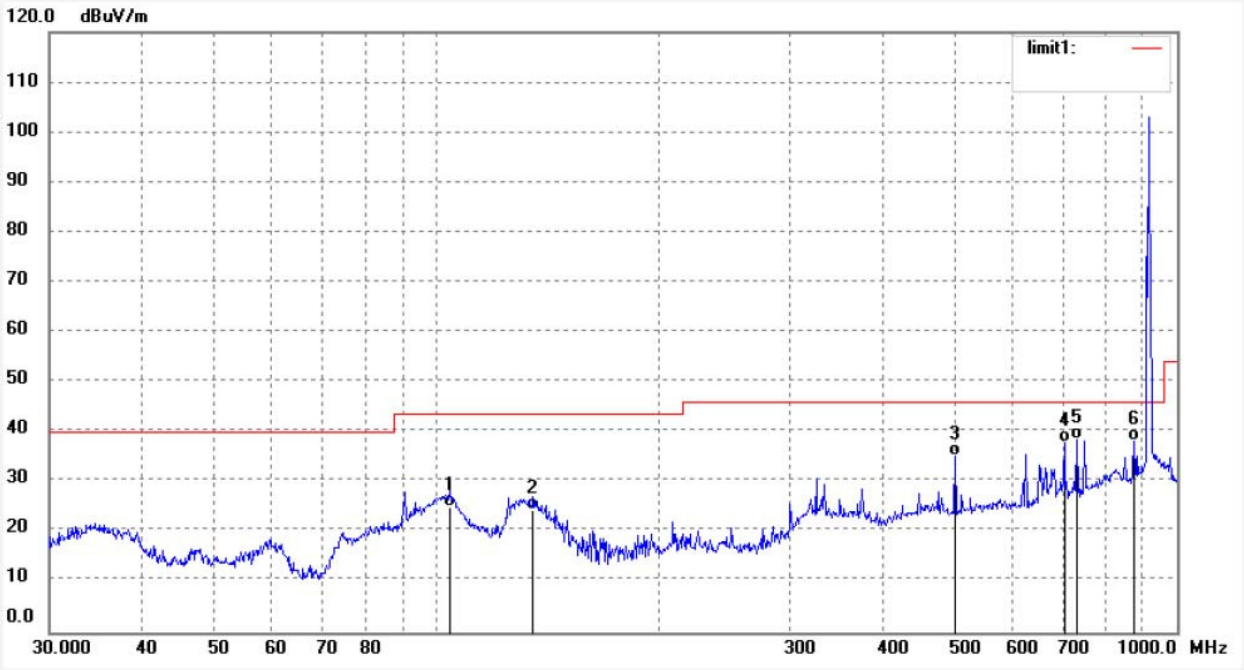
Job No.: STAR2015 #1246
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 914.75MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:43:26
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	104.1701	39.00	-13.81	25.19	43.50	-18.31	QP			
2	135.0319	38.47	-14.08	24.39	43.50	-19.11	QP			
3	501.1788	40.13	-4.83	35.30	46.00	-10.70	QP			
4	704.2259	39.60	-1.66	37.94	46.00	-8.06	QP			
5	731.9202	39.95	-1.33	38.62	46.00	-7.38	QP			
6	875.2468	37.17	1.11	38.28	46.00	-7.72	QP			

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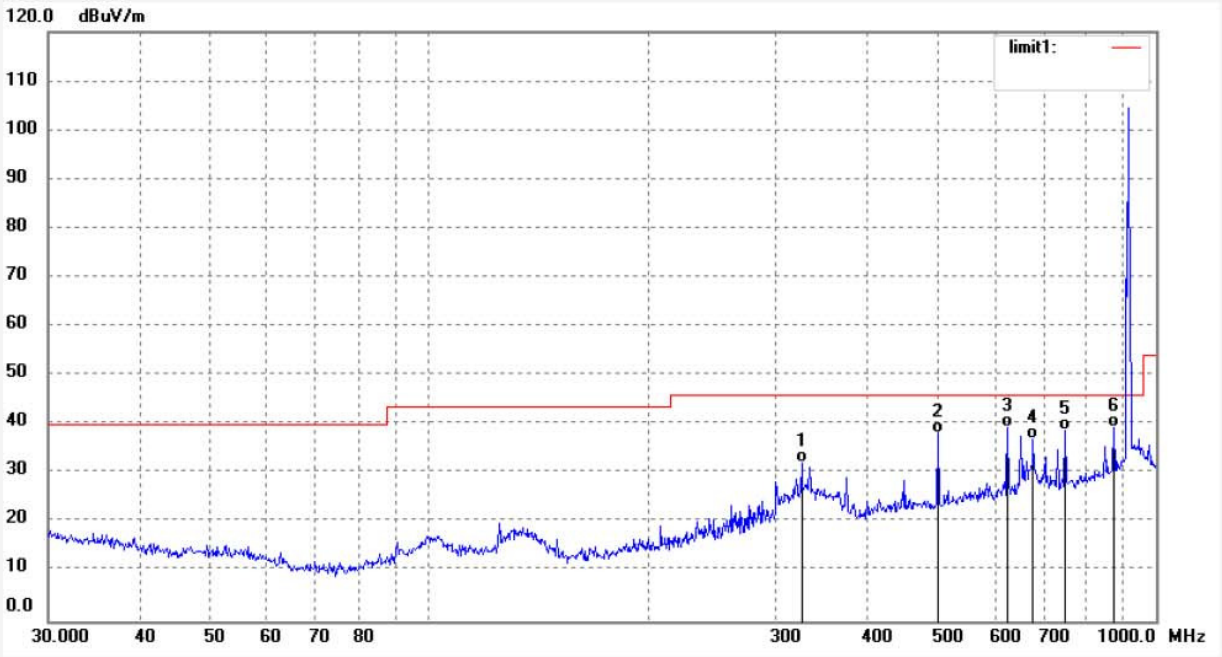
Job No.: STAR2015 #1247
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 914.75MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:44:38
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	325.5957	40.68	-8.51	32.17	46.00	-13.83	QP			
2	501.1788	43.12	-4.83	38.29	46.00	-7.71	QP			
3	625.0778	42.19	-2.61	39.58	46.00	-6.42	QP			
4	677.5797	38.99	-2.04	36.95	46.00	-9.05	QP			
5	750.1082	39.92	-1.03	38.89	46.00	-7.11	QP			
6	875.2468	38.38	1.11	39.49	46.00	-6.51	QP			

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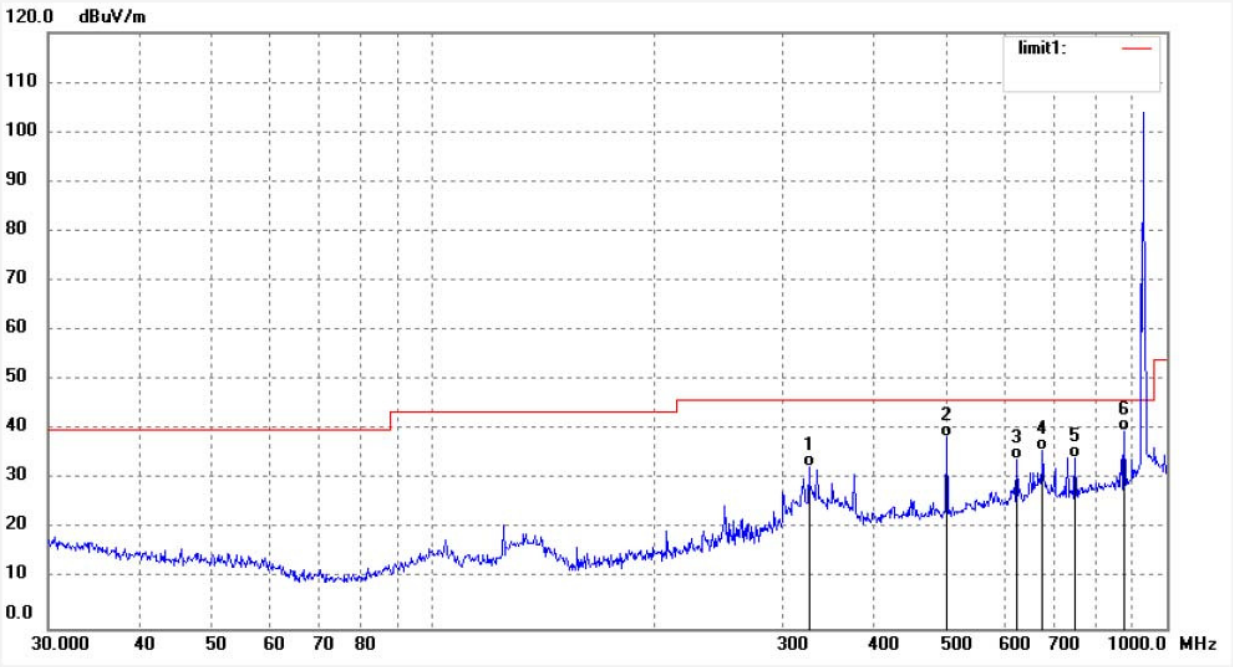
Job No.: STAR2015 #1248
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 927.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:46:53
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	325.5957	41.03	-8.51	32.52	46.00	-13.48	QP			
2	501.1788	43.30	-4.83	38.47	46.00	-7.53	QP			
3	625.0778	36.69	-2.61	34.08	46.00	-11.92	QP			
4	677.5797	38.01	-2.04	35.97	46.00	-10.03	QP			
5	750.1082	35.28	-1.03	34.25	46.00	-11.75	QP			
6	875.2468	38.71	1.11	39.82	46.00	-6.18	QP			

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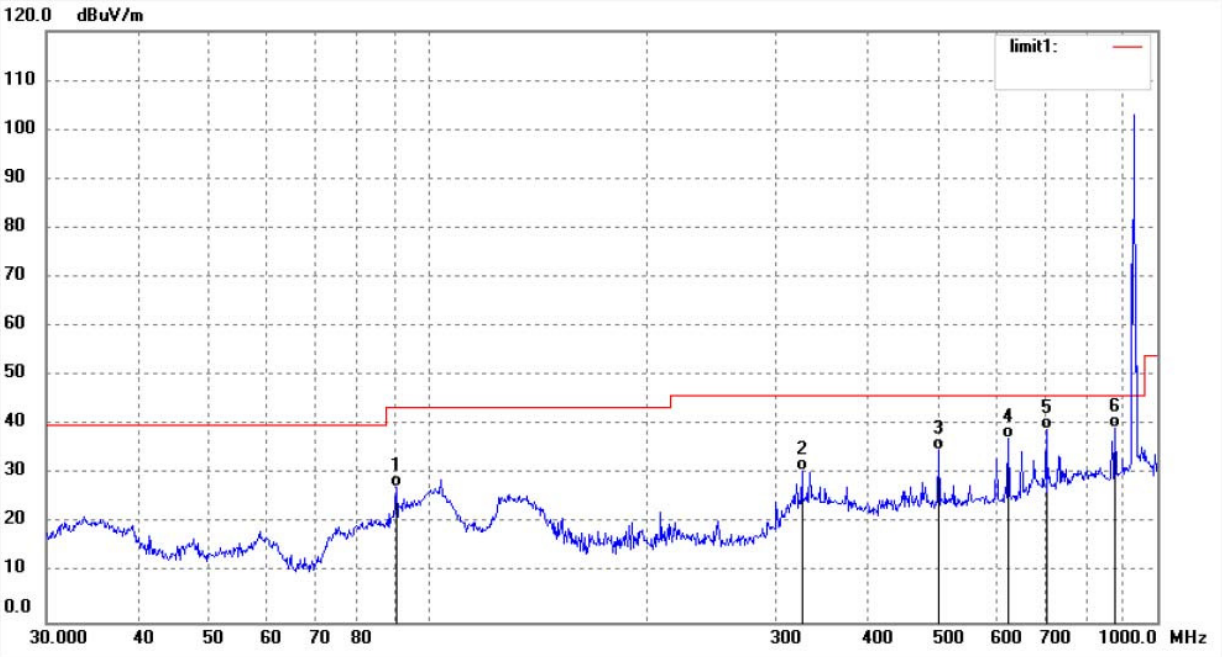
Job No.: STAR2015 #1249
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 927.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:47:30
Engineer Signature: Star
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	90.5374	42.54	-15.04	27.50	43.50	-16.00	QP			
2	325.5957	39.17	-8.51	30.66	46.00	-15.34	QP			
3	501.1788	39.71	-4.83	34.88	46.00	-11.12	QP			
4	625.0778	39.90	-2.61	37.29	46.00	-8.71	QP			
5	704.2259	40.77	-1.66	39.11	46.00	-6.89	QP			
6	875.2468	38.27	1.11	39.38	46.00	-6.62	QP			

Above 1GHz

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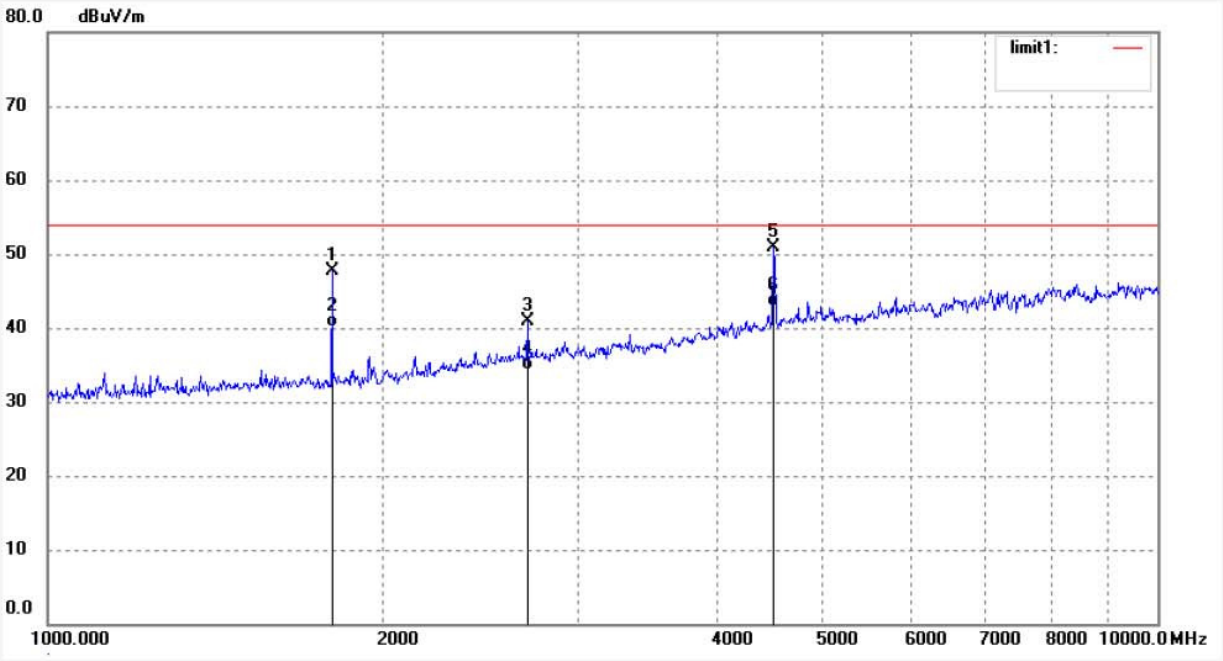
Job No.: STAR2015 #1255
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 902.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 19:01:50
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1805.000	57.68	-10.01	47.67	74.00	-26.33	peak			
2	1805.000	50.14	-10.01	40.13	54.00	-13.87	AVG			
3	2707.500	47.29	-6.32	40.97	74.00	-33.03	peak			
4	2707.500	40.67	-6.32	34.35	54.00	-19.65	AVG			
5	4512.500	52.28	-1.29	50.99	74.00	-23.01	peak			
6	4512.500	44.17	-1.29	42.88	54.00	-11.12	AVG			

Note: Average measurement with peak detection at No.2

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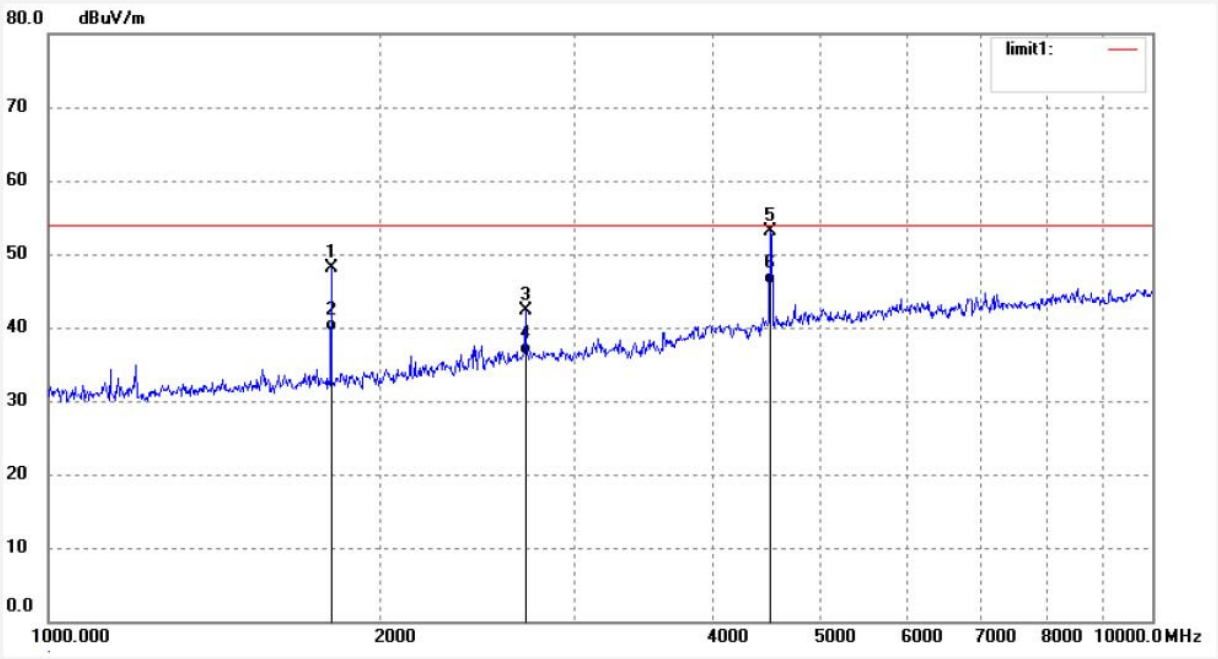
Job No.: STAR2015 #1254
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 902.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 19:00:30
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1805.000	58.20	-10.01	48.19	74.00	-25.81	peak			
2	1805.000	49.61	-10.01	39.60	54.00	-14.40	AVG			
3	2707.500	48.57	-6.32	42.25	74.00	-31.75	peak			
4	2707.500	42.70	-6.32	36.38	54.00	-17.62	AVG			
5	4512.500	54.45	-1.29	53.16	74.00	-20.84	peak			
6	4512.500	47.15	-1.29	45.86	54.00	-8.14	AVG			

Note: Average measurement with peak detection at No.2

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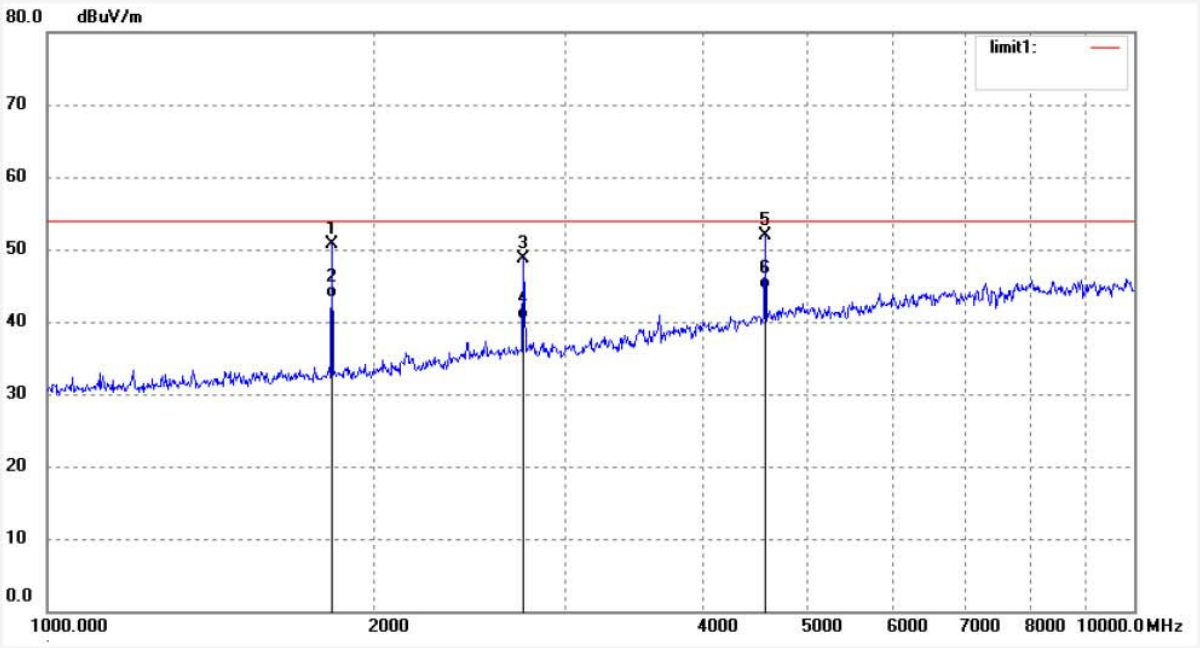
Job No.: STAR2015 #1253
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 914.75MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:57:22
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1829.500	60.50	-9.75	50.75	74.00	-23.25	peak			
2	1829.500	52.99	-9.75	43.24	54.00	-10.76	AVG			
3	2744.250	54.84	-6.14	48.70	74.00	-25.30	peak			
4	2744.250	46.44	-6.14	40.30	54.00	-13.70	AVG			
5	4573.750	53.10	-1.19	51.91	74.00	-22.09	peak			
6	4573.750	45.61	-1.19	44.42	54.00	-9.58	AVG			

Note: Average measurement with peak detection at No.2

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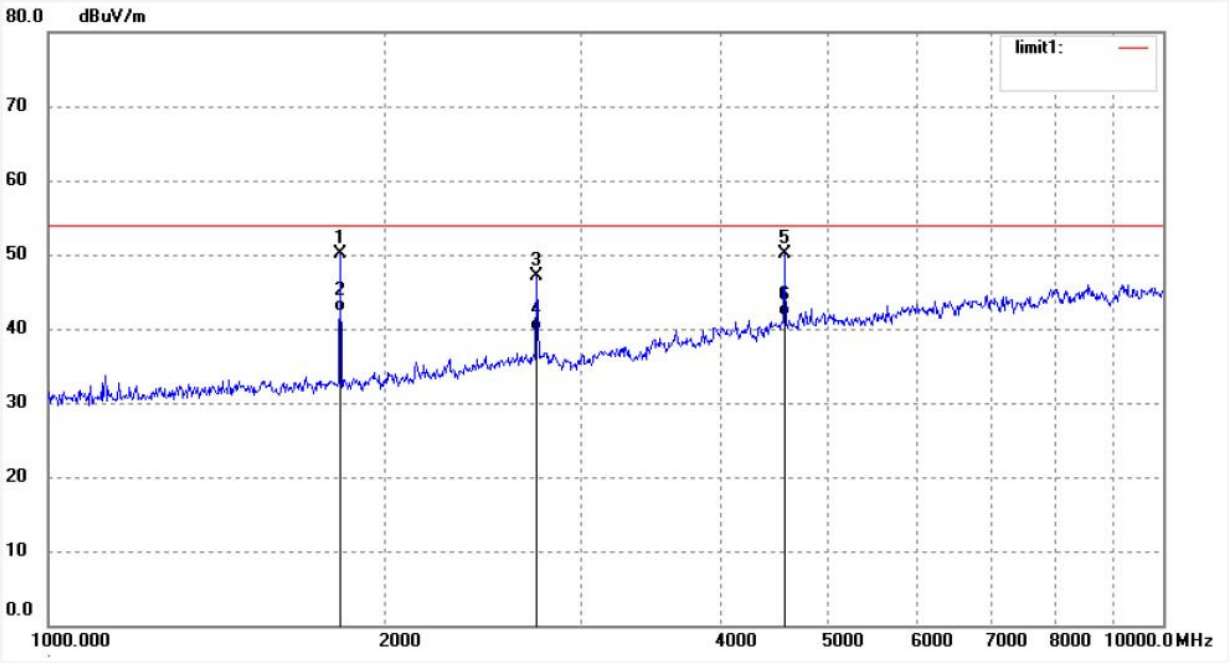
Job No.: STAR2015 #1252
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 914.75MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:56:22
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1829.500	59.84	-9.75	50.09	74.00	-23.91	peak			
2	1829.500	52.00	-9.75	42.25	54.00	-11.75	AVG			
3	2744.250	53.34	-6.14	47.20	74.00	-26.80	peak			
4	2744.250	45.77	-6.14	39.63	54.00	-14.37	AVG			
5	4573.750	51.26	-1.19	50.07	74.00	-23.93	peak			
6	4573.750	42.97	-1.19	41.78	54.00	-12.22	AVG			

Note: Average measurement with peak detection at No.2

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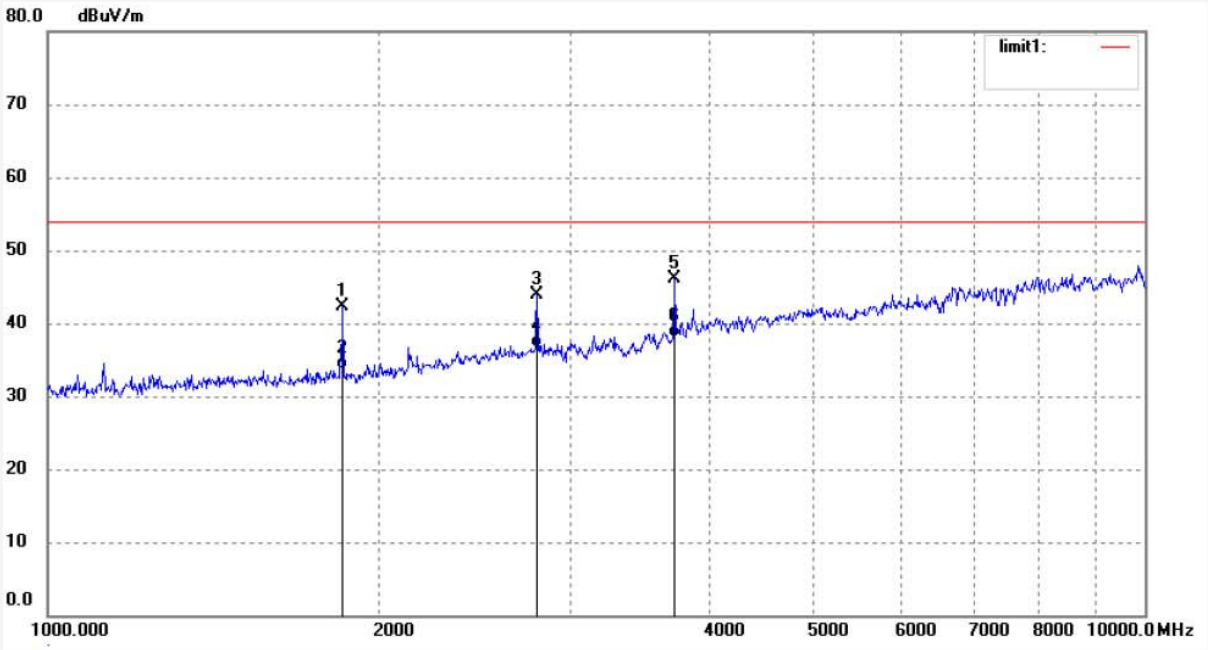
Job No.: STAR2015 #1251
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 927.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:54:30
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1855.000	51.95	-9.56	42.39	74.00	-31.61	peak			
2	1855.000	43.18	-9.56	33.62	54.00	-20.38	AVG			
3	2782.500	49.87	-6.06	43.81	74.00	-30.19	peak			
4	2782.000	42.72	-6.06	36.66	54.00	-17.34	AVG			
5	3710.000	48.39	-2.35	46.04	74.00	-27.96	peak			
6	3710.000	40.46	-2.35	38.11	54.00	-15.89	AVG			

Note: Average measurement with peak detection at No.2

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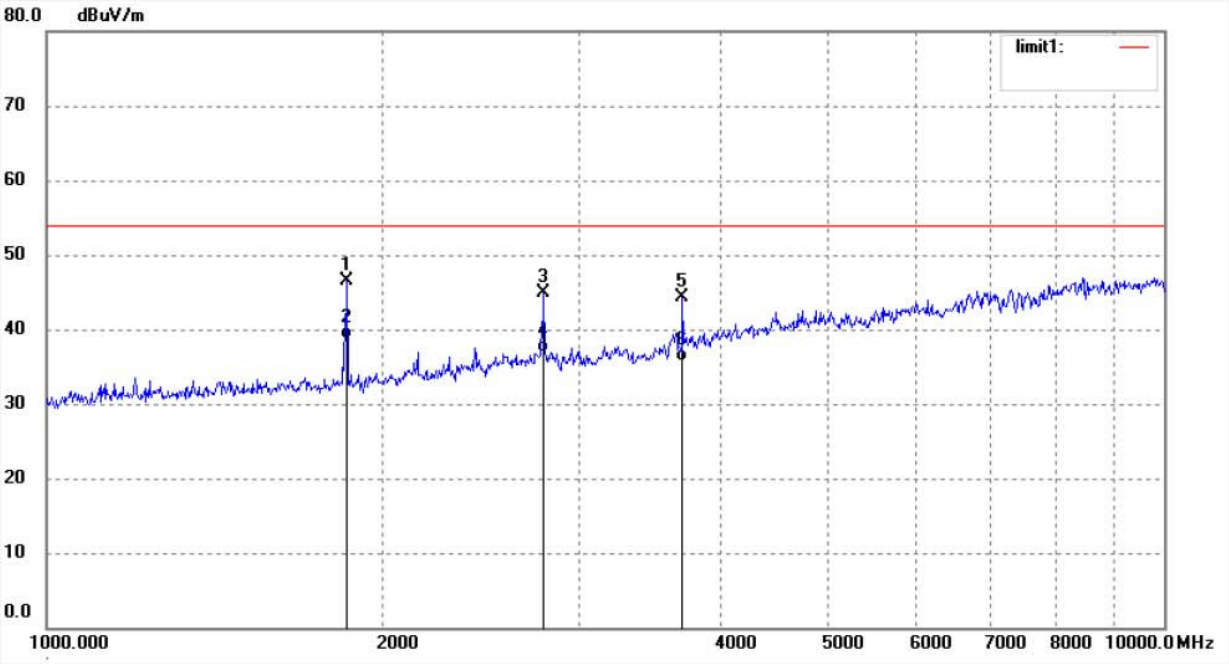
Job No.: STAR2015 #1250
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: SmartESL Accesspoint
Mode: TX 927.5MHz
Model: 500300
Manufacturer: findbox GmbH

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2016-5-31
Time: 18:53:36
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20161077

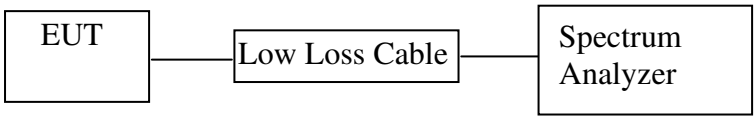


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1855.000	56.15	-9.56	46.59	74.00	-27.41	peak			
2	1855.000	48.22	-9.56	38.66	54.00	-15.34	AVG			
3	2782.500	50.94	-6.07	44.87	74.00	-29.13	peak			
4	2782.500	42.90	-6.07	36.83	54.00	-17.17	AVG			
5	3710.000	46.78	-2.39	44.39	74.00	-29.61	peak			
6	3710.000	38.00	-2.39	35.61	54.00	-18.39	AVG			

Note: Average measurement with peak detection at No.2

12. BAND EDGE COMPLIANCE TEST

12.1. Block Diagram of Test Setup



(EUT: SmartESL Accesspoint)

12.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

12.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

12.4. Operating Condition of EUT

12.4.1. Setup the EUT and simulator as shown as Section 11.1.

12.4.2. Turn on the power of all equipment.

12.4.3. Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 902.5-927.5MHz. We select 902.5MHz, 927.5MHz TX frequency to transmit.

12.5.Test Procedure

12.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

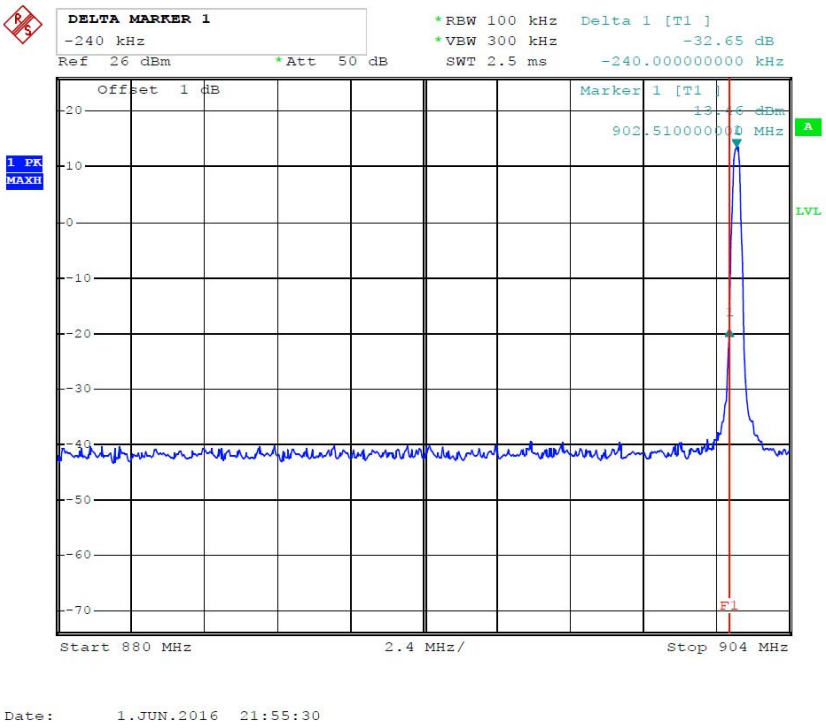
12.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

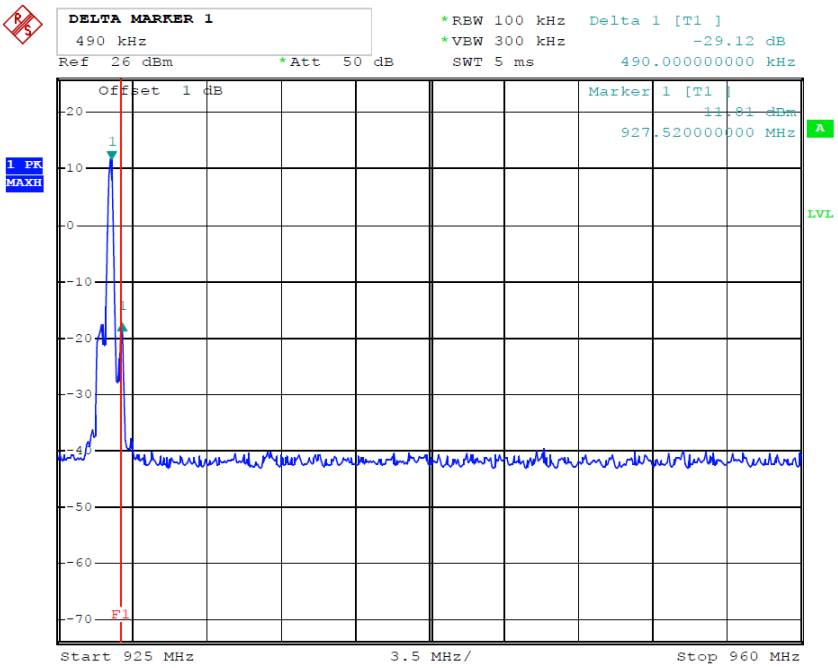
12.5.3.The band edges was measured and recorded.

12.6.Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
FSK		
902.5	-32.65	> -20dBc
927.5	-29.12	> -20dBc

FSK





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13. ANTENNA REQUIREMENT

13.1. The Requirement

According to Section 15.203, 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.

13.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.