TEST REPORT

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Report No.: KR19-SRF0126

1. Client

- Name : FINETEK Co.,Ltd. .
- Address : 22,4sandan6-gil, Jiksan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea
- Date of Receipt : 2019-05-14

2. Use of Report : -

3. Name of Product and Model : ESL(Electronic Shelf Label) / FNTAP

4. Manufacturer and Country of Origin : FINETEK VN / Vietnam

5. FCC ID : 2ATK2-FNTAP

6. Date of Test : 2019-08-04 to 2019-08-05

7. Test Standards : CFR 47 Part 1.1310

8. Test Results : Refer to the test result in the test report

Affirmation	Tested by Name : Seonjun Yun (Signature)	Technical Manager Name : Jaehyong Lee (Signature)

2019-08-20

KCTL Inc.

Report revision history

Date	Revision	Page No
2019-08-20	Initial report	-

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1. General information

Client	:	FINETEK Co.,Ltd.
Address	:	22, 4sandan 6-gil, Jiksan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea
Manufacturer	:	FINETEK VN
Address	:	Lot No A1-3, Road N2, A Area, Hoa Mac Industrial Zone, Hoa Mac Town, Duy Tien District, Ha Nam Province, Vietnam
Laboratory	:	KCTL Inc.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132 VCCI Registration No. : R-3327, G-198, C-3706, T-1849 Industry Canada Registration No. : 8035A KOLAS No.: KT231

2. Device information

Equipment under test	:	ESL(Electronic Shelf Label)
Model	:	FNTAP
Frequency range	:	2 405 ㎒ ~ 2 480 ㎒ (Zigbee)
Modulation technique	:	O-QPSK (Zigbee)
Number of channels	:	16 ch
Power source	:	AC 120 Ⅴ / 60 ㎐
Antenna specification	:	Dipole Antenna
Antenna gain	:	3.05 ㏈i (ANT1, 2)
Software version	:	FE_AP V2.1
Hardware version	:	V2.7
Test device serial No.	:	N/A
Operation temperature	:	21 ℃

2.1. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power source
ADAPTER	ShenZhen Top-Asia Electronics Co.,Limited	SW20-05003000-KC	-	100-240 Ⅴ ~50/60 ㎐ 1,5A

3. Test results
3.1. RF Exposure

Regulation

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

Limits for Maximum Permissive Exposure: RF exposure is calculated.

Frequency Range	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [㎽/㎠]	Averaging Time [minute]
Limits for General Population / Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*(100)	30
1.34 ~ 30	824/f	2.19/f	*(180/f^2)	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1.0	30

*f=frequency in ㎒, *= plane-wave equivalent power density*

MPE (Maximum Permissive Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2 \quad \left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$

S = power density [㎽/㎠]
P = Power input to antenna [㎽]
G = Power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna [㎝]

RF Exposure Compliance Issue

The information should be included in the user's manual:

This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 ㎝ must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

Calculation Result of RF Exposure

Mode	Frequency	Target power	Tune up tolerance	Max tune up power	Max tune up power	Ant Gain	Ant Gain	Power Density at 20 ㎝	Limit
	[㎒]	[dB m]	[dB]	[dB m]	[㎽]	[dB i]	[㎽]	[㎽/㎠]	[㎽/㎠]
Zigbee_ Lowest_ ANT1	2 405	1.50	±2.0	3.50	2.24	3.05	2.02	0.000 90	1.000 00
Zigbee_ Lowest_ ANT2	2 405	0.50	±2.0	2.50	1.78	3.05	2.02	0.000 71	1.000 00
Total	Simultaneous Transmission_Zigbee (ANT1 + ANT2)							0.001 60	1.000 00

Target power and tolerance, Max tuneup power

- Zigbee -

ANT1

Mode	Target power [dB m]	Tolerance [dB]	Max tuneup power [dB m]	Average Power [dB m]
Zigbee_Lowest	1.50	±2.00	3.50	3.19
Zigbee_Middle	1.50	±2.00	3.50	2.77
Zigbee_Highest	1.50	±2.00	3.50	2.22

ANT2

Mode	Target power [dB m]	Tolerance [dB]	Max tuneup power [dB m]	Average Power [dB m]
Zigbee_Lowest	0.50	±2.00	2.50	1.51
Zigbee_Middle	0.50	±2.00	2.50	2.21
Zigbee_Highest	0.50	±2.00	2.50	1.90

End of test report