## FCC PART 15 SUBPART C TEST REPORT

for

## **VEHICLE DOCK**

**Model No.: FCS-X1-WTD** 

FCC ID: ZPJ-FCS-X1-WTD-1

of

Applicant: COBAN Technologies, Inc.

Address: 11375 W. Sam Houston Parkway South, Suite# 800, Houston,
TX. 77031 USA

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1111, TW1072, TW1110

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01





Report No.: W6M21707-17245-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C. TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wts@wts-lab.com

Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

## **TABLE OF CONTENTS**

1	GEN	NERAL INFORMATION	2
	1.1	Notes	2
	1.2	TESTING LABORATORY	3
	1.2.1	l Location	3
	1.2.2	2 Details of accreditation status	3
	1.3	DETAILS OF APPROVAL HOLDER	3
	1.4	APPLICATION DETAILS	4
	1.5	GENERAL INFORMATION OF TEST ITEM	4
	1.6	TEST STANDARDS	5
2	TEC	CHNICAL TEST	6
	2.1	SUMMARY OF TEST RESULTS	6
	2.2	TEST ENVIRONMENT	6
	2.3	TEST EQUIPMENT LIST	7
	2.4	GENERAL TEST PROCEDURE	10
3	TES	ST RESULTS (ENCLOSURE)	12
	3.1	PEAK OUTPUT POWER (TRANSMITTER)	13
	3.2	RF Exposure Compliance Requirements	16
	3.3	TRANSMITTER RADIATED EMISSIONS IN RESTRICTED BANDS	17
	3.4	Spurious Emissions (TX)	18
	3.5	RADIATED EMISSION ON THE BAND EDGE	20
	3.6	MINIMUM 6 DB BANDWIDTH	22
	3.7	PEAK POWER SPECTRAL DENSITY	25
	3.8	RADIATED EMISSION FROM DIGITAL PART	28
	3.9	Power Line Conducted Emission	29
A	PPEN	DIX	

FCC ID: ZPJ-FCS-X1-WTD-1 **General Information** 

#### 1 General Informati

#### 1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

**Tester:** 

July 20, 2017 Rick Chen Rick Chen.

Date WTS-Lab. Name Signature

**Technical responsibility for area of testing:** 

July 20, 2017 Kevin Wang

Date WTS Name Signature

FCC ID: ZPJ-FCS-X1-WTD-1

1.2 Testing laboratory

### 1.2.1 Location

**OATS** 

No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207,

Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228 FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd. 6F, NO. 58, LANE 188, RUEY-KUANG RD. NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877 Fax : 886-2-66068879

#### 1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. TW1477, TW1111, TW1072, TW1110 Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

#### Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.:

Name: /.
Accredited number: /.
Street: /.
Town: /.
Country: /.
Telephone: /.
Fax: /.

## 1.3 Details of approval holder

Name: COBAN Technologies, Inc.

Street: 11375 W. Sam Houston Parkway South, Suite# 800,

Town: Houston, TX. 77031

Country: USA

Telephone: 2189250488 Fax: 2189250535

FCC ID: ZPJ-FCS-X1-WTD-1

## 1.4 Application details

Date of receipt of test item:	June 05,	2017
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Date of test: from June 06, 2017 to July 20, 2017

#### 1.5 General information of Test item

Type of test item:	VEHICLE DOCK
Type of test item:	VEHICLE DOCK
- J P	,

Model Number: FCS-X1-WTD

Brand Name: COBAN

Multi-listing model number: ./.

Photos: see Appendix

#### **Technical data**

Frequency band: 2402 MHz – 2480 MHz

Frequency ( ch 0 or A): 2402 MHz
Frequency ( ch 19 or B): 2441 MHz
Frequency ( ch 39 or C): 2480 MHz

Number of Channels: 40

Operation modes: Duplex
Modulation Type: GFSK

Fixed point-to-point operation:  $\square$  Yes /  $\boxtimes$  No

Type of Antenna: Dipole Antenna

Antenna gain: 1.5 dBi
Power supply: 12 Vd.c.
Emission designator: 1M40G1D

Host device: none

Classification

Fixed Device	
Mobile Device (Human Body distance > 20cm)	
Portable Device (Human Body distance < 20cm)	



FCC ID: ZPJ-FCS-X1-WTD-1

<u>Transmitter</u> <u>Unom</u>

Power ( ch 0 or A): Conducted: -2.38 dBm Power ( ch 19 or B): Conducted: -3.80 dBm Power ( ch 39 or C): Conducted: -4.52 dBm

Manufacturer: (if applicable)

Name: Allis Communications

Street: 10F-3, No. 31-1, Lane 169, Kangning St., Xizhi Dist.,

Town: New Taipei City 221,

Country: Taiwan

Additional information: ./.

#### 1.6 Test standards

Technical standard: FCC RULES SUBPART C § 15.247 (2016-10)

FCC ID: ZPJ-FCS-X1-WTD-1 **2 Technical test** 

## 2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course	
of the tests performed.	

or

The deviations as specified in 2.5 were ascertained in the course of the tests performed.

### 2.2 Test environment

Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Power supply: 12Vd.c.

Extreme conditions parameters: ./.

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty: 0.74 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty: 0.009-30 MHz: 2.17 dB 30-1000 MHz: 3.30 dB 1-18 GHz: 2.28 dB 18-40 GHz: 2.19 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty: 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty: 1.01 dB
Estimation Result of Uncertainty of Power Density Measurement Power density	Expanded Uncertainty: 1.09 dB
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty: 0.98 dBc

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Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

#### 2.3 **Test Equipment List**

No.	Test equipment	Туре	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2017/5/26	2018/5/25
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function	on Test
HF-EICHLEITUNG RF ETSTW-CE 008 HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP		334.6010.02	844581/024	R&S	Function	on Test
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2017/7/12	2018/7/11
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2016/9/12	2017/9/11
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2016/8/26	2017/8/25
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2017/5/26	2018/5/25
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2017/5/17	2018/5/16
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2017/7/3	2018/7/2
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function	on Test
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function	on Test
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2017/7/4	2018/7/3
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2017/7/3	2018/7/2
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2017/3/22	2018/3/21
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2017/2/7	2018/2/6
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2017/4/10	2018/4/9
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2017/4/27	2018/4/26
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2017/3/1	2018/2/28
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2017/3/1	2018/2/28
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2017/4/12 2018/4/1	
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function	on Test
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2016/9/8	2017/9/7
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2016/9/20	2017/9/19
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2017/4/6	2018/4/5
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Functi	on test
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2017/1/12	2018/1/11



Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

ETSTW-RE 120	FCS-X1-W1D-1	M0200	MD0210 111022	ADIMIC	Б. 4	
	RF Player	MP9200	MP9210-111022	ADIVIC	Functi	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A 5NSL11-	102149	R&S	2017/5/26	2018/5/25
ETSTW-RE 125	5GHz Notch filter	5200/E221.3-O/O 5NSL12-	1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 126	ETSTW-RE 126 5GHz Notch filter		1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2017/3/1	2018/2/28
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-te	st Use
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2017/4/12	2018/4/11
ETSTW-RE 143	Humidity Temperature Meter	TES-1260	110104623	TES	2016/8/19	2017/8/18
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2017/3/22	2018/3/21
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2017/5/10	2018/5/9
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2017/2/24	2018/2/23
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2017/2/10	2018/2/9
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2016/12/15	2017/12/14
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849- 822/851-40 /12+9SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748- 1743/1752-32/5SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 021	ETSTW-GSM 021 Band Reject Filter		3	3 WI		2018/1/11
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1- 904.25-50/8SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 023	Power Divider	4901.19.A	None SUHNER		2016/9/14	2017/9/13
ETSTW-Cable 010	BNC Cable	RGS-142	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test U	Jse NCR
ETSTW-Cable 012	BNC Cable	RGS-400	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2017/7/3	2018/7/2
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2017/4/6	2018/4/5
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2017/5/12	2018/5/11
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S_Cable 10)	238092	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2017/4/12	2018/4/11



Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

ETSTW-Cable 058 Microwave Cable S		SUCOFLEX 104	none	HUBER+SUHNER	2017/2/20	2018/2/19
ETSTW-Cable 064 Microwave Cable		SUCOFLEX 104	MY28891	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 066 SMA type cable		32022	None	ASTROLAB	2016/9/12	2017/9/11
ETSTW-Cable 071 N TYPE CABLE		EMCCFD400-NM- NM-25000	170239	EMCI	2017/2/20	2018/2/19
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version I	ETS-03A1
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	None AUDIX Versi		9.161014
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version	2.0.0.1

FCC ID: ZPJ-FCS-X1-WTD-1

#### 2.4 General Test Procedure

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.10-2013 5.2 using a 50μH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

**RADIATION INTERFERENCE:** The test procedure used was according to ANSI STANDARD C63.10-2013 6.4 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of  $dB\mu V$ ) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz) METER READING + ACF + CABLE LOSS(to the receiver) = FS

33  $20 \text{ dB}\mu\text{V} + 10.36 \text{ dB} + 6 \text{ dB} = 36.36 \text{ dB}\mu\text{V/m} \text{ @3m}$ 

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.10-2013 6.3.1. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207, Taiwan (R.O.C.). The Registration Number: 930600.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



FCC ID: ZPJ-FCS-X1-WTD-1

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = 20 log (dwell time/T)

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

ANSI STANDARD C63.10-2013 B.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.



Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

## Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(d)	×	×	
Equivalent isotropically radiated Power	15.247(b)	×	×	
Spurious Emissions radiated – Transmitter operating	15.247(d):	×	×	
	15.209			
Band Edge Measurement	15.247(d)	×	×	
Minimum 6 dB Bandwidth	15.247(a)(2)	×	×	
Peak Power Spectral Density	15.247(e)	×	×	
Radiated Emission from Receiver part	15.109			
Power Line Conducted Emission	15.207			

The following is intentionally left blank.



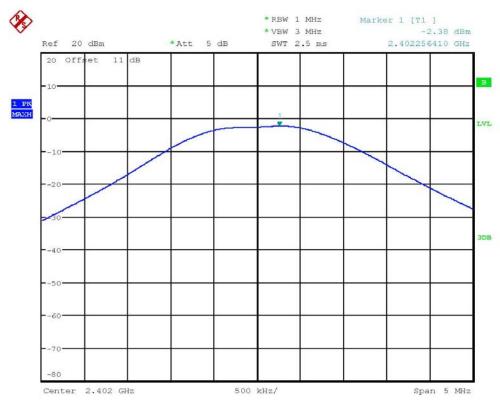
Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.1 Peak Output Power (transmitter)

FCC Rule: 15.247(d)(3)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

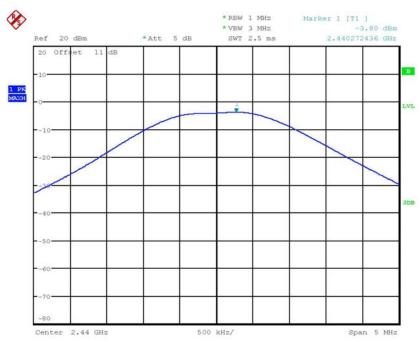


MAX OUTPUT POWER BT4.0 CH0
Date: 14.JUL.2017 10:08:22

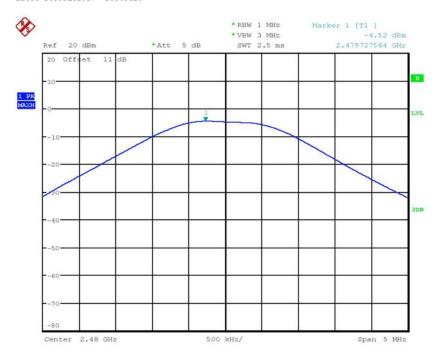


Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1



MAX OUTPUT POWER BT4.0 CH19 Date: 14.JUL.2017 10:09:20



MAX OUTPUT POWER BT4.0 CH39 Date: 14.JUL.2017 10:10:03



Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1

Limits:

Frequency	Power
MHz	dBm
902 - 928	30
2400 – 2483.5	30
5725 - 5850	30

In case of employing transmitter antennas having antenna gain > 6 dBi and using fixed point-to point operation consider \$15.247 (b)(4)

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.2 RF Exposure Compliance Requirements

FCC Rule: 15.247(b)(3)

Test exclusion = max. conducted output power

Test exclusion = -2.38 dBm

**RESULT:** 

Test standard : FCC KDB Publication

447498 D01 General RF Exposure Guidance v06

According to 447498 D01 General RF Exposure Guidance v06:

SAR evaluation, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

The enclosure of the device provides  $\geq 0.5$  cm separation from the antenna elements to significant metal parts of the enclosure to minimize potential perturbations.

Frequency Band:2400-2483.5 MHz

Maximum Power fed to Antenna: 0.5781 mW

Separation distances: Radiator to user: > 5 mm

Distance prescribed in user manual: > 5 mm

MIL 5 10 15 20 25																
M	ИHz		5		10	)		15		20		25			mm	
2450														SA	R Test	
			10		19	9		29		38		48		Exe	clusion	
														Threshold (mW)		
M	MHz 30 35		5		40		45 50			mm						
														SA	R Test	
24	450		57		6'	7		77		86		96			clusion	
														Thresh	old (m	W)
													<u> </u>			
MII	50	(0	70	0.0	00	100	110	120	120	1.40	150	1.00	170	100	100	
MHz	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
2450	96	196	296	396	496	596	696	796	896	996	1096	1196	1296	1396	1496	mW

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.3 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (d), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 26500 MHz.

For radiated emission tests, the analyzer setting was as followings:

Frequency ≤ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)
Frequency > 1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)
Frequency > 1 GHz, RBW:1 MHz, VBW: 10 Hz (Average measurements)

Limits.

For frequencies below 1GHz:

Frequency of Emission	Field strength	Field Strength
(MHz)	(microvolts/meter)	(dB microvolts/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of Digit Transmission Systems:

"If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation."

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = 20 log (dwell time/ 100ms)

Note: No duty cycle correction was added to the reading of this EUT.

Explanation: See attached diagrams in Appendix.

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.4 Spurious Emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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. Attenuation below the general limits specified in § 15.209(a) is not required. 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) (see § 15.205(c))

FCC Rule: 15.247(d), 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

#### Limits:

For frequencies above 1GHz (Peak measurements). Modified Limit for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

For frequencies above 1GHz (Average measurements). Max. reading – 20dB

Max. reading – 20 dB

Guidance on Measurement of Digit Transmission Systems:

"If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation."

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty Cycle correction = 20 log (dwell time/100ms)

Note: No duty cycle correction was added to the reading of EUT.



Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance with point 2.3.

#### Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Correction Factor".

#### Summary table with radiated data of the test plots

Model: FCS-X1-WTD Date: -Mode: -- Temperature: -- °C Engineer: -Polarization: -- Humidity: -- %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)

Frequency	Reading		Factor	Result		Limit		Margin	Table	Ant.
	(dBuV)		(dB)	(dBuV/m)		(dBuV/m)			Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(m)
						1				
						-				
						-				

#### Note

- 1. Correction Factor = Antenna factor + Cable loss Preamplifier
- 2. The formula of measured value as: Test Result = Reading + Correction Factor
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty for 3m measurement:  $30-1000 \text{ MHz} = \pm 3.30 \text{ dB}$ ,  $1-18 \text{ GHz} = \pm 2.28 \text{ dB}$ ,  $18-40 \text{ GHz} = \pm 2.19 \text{ dB}$ ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 6. Please see attached diagrams in Appendix.

**TEST RESULT (Transmitter):** The unit DOES meet the FCC requirements.

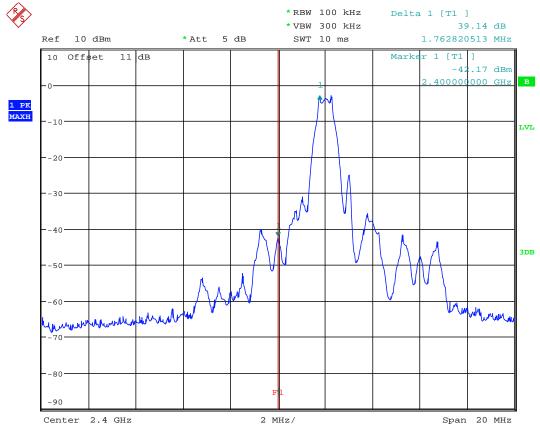
Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147, ETSTW-RE 088, ETSTW-RE 018

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.5 Radiated Emission on the band edge

According to FCC rules part 15 subpart C §15.247(d) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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. Attenuation below the general limits specified in § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.



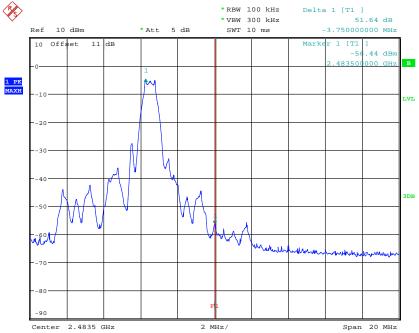
BANDEDGE BT4.0 CH0

Date: 14.JUL.2017 10:29:00



Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1



BANDEDGE BT4.0 CH39
Date: 14.JUL.2017 10:27:55

#### Limit:

Frequency Range / MHz	Limit
902 –928	
2400 – 2483.5	- 20 dB
5725 - 5850	

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.6 Minimum 6 dB Bandwidth

The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission. The 6 dB bandwidth is the frequency difference between the two markers.

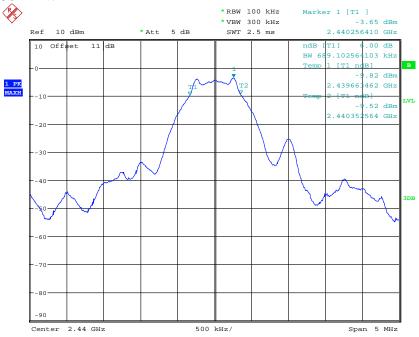


6DB BANDWIDTH BT4.0 CH0
Date: 14.JUL.2017 10:21:13



Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1



6DB BANDWIDTH BT4.0 CH19
Date: 14.JUL.2017 10:24:23



6DB BANDWIDTH BT4.0 CH39
Date: 14.JUL.2017 10:24:40



Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

### Limits:

Frequency Range MHz	Limits
902-928	min 500 kHz
2400-2483.5	min 500 kHz
5725-5850	min 500 kHz

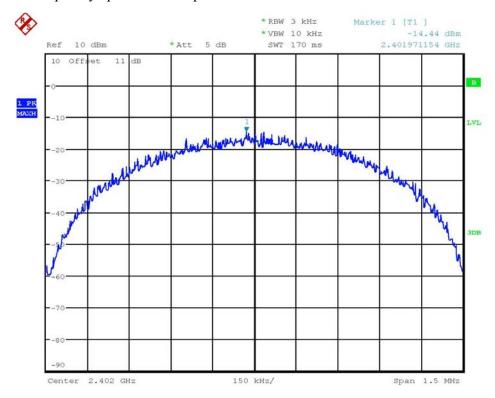
Test equipment used: ETSTW-RE 055, ETSTW-RE 050

FCC ID: ZPJ-FCS-X1-WTD-1

## 3.7 Peak Power Spectral Density

Peak Power Spectral density is a measured at low, middle and high channel.

The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appreciate frequency span and sweep time.

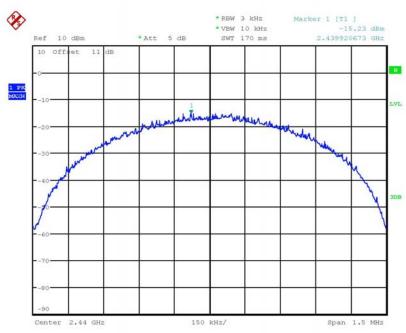


POWER DENSITY BT4.0 CH0
Date: 14.JUL.2017 10:16:50

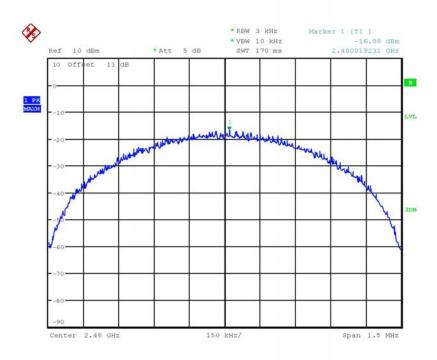


Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1



POWER DENSITY BT4.0 CH19 Date: 14.JUL.2017 10:16:27



POWER DENSITY BT4.0 CH39
Date: 14.JUL.2017 10:13:51



Registration number: W6M21707-17245-C-1 FCC ID: ZPJ-FCS-X1-WTD-1

### **Limits:**

Frequency Range MHz	dBm
902-928	8
2400-2483.5	8
5725-5850	8

Test equipment used: ETSTW-RE 055, ETSTW-RE 050



Registration number: W6M21707-17245-C-1

FCC ID: ZPJ-FCS-X1-WTD-1

### 3.8 Radiated Emission from Receiver Part

Model: FCS-X1-WTD Date: -
Mode: -- Temperature: -- °C Engineer: --

Polarization: -- Humidity: -- %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
							-	

Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(m)
						1			1	
						1			1	
						-				

#### Note

- 1. Correction Factor = Antenna factor + Cable loss Preamplifier
- 2. The formula of measured value as: Test Result = Reading + Correction Factor
- 3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty for 3m measurement:  $30\text{-}1000 \text{ MHz} = \pm 3.30 \text{ dB}$ , 1-18 GHz =  $\pm 2.28 \text{ dB}$ , 18-40 GHz =  $\pm 2.19 \text{ dB}$ ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
- 6. Please see diagrams in test report number: W6M21704-16827-P-15B.



FCC ID: ZPJ-FCS-X1-WTD-1

### 3.9 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Model: FCS-X1-WTD Date: -
Mode: -- Temperature: -- °C Engineer: -
Polarization: -- Humidity: -- %

1 Oldi ization.		110	iiiiaity.		70			
Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin
(MHz)	QP Ave.		Corr.	. QP Ave.		QP Ave.		(dB)
							-	
							-	
							-	

Polarization: --

I GIGITZGUOII.								
Frequency	Rea	ding	Factor	Factor Result		Liı	nit	Margin
	(dB	uV)	(dB)	(dBuV)		(dBuV)		
(MHz)	QP Ave.		Corr.	QP Ave.		QP Ave.		(dB)
							ı	
							ŀ	
							ŀ	
							ŀ	
							I	

Note: 1. The formula of measured value as: Test Result = Reading + Correction Factor

- 2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty =  $\pm 0.74$  dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
- 6. This test is not required.

#### Limits:

 111165.					
Frequency of Emission (MHz)	Conducted Limit (dBuV)				
	Quasi Peak	Average			
0.15-0.5	66 to 56	56 to 46			
0.5-5	56	46			
5-30	60	50			

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-CE 028.

FCC ID: ZPJ-FCS-X1-WTD-1

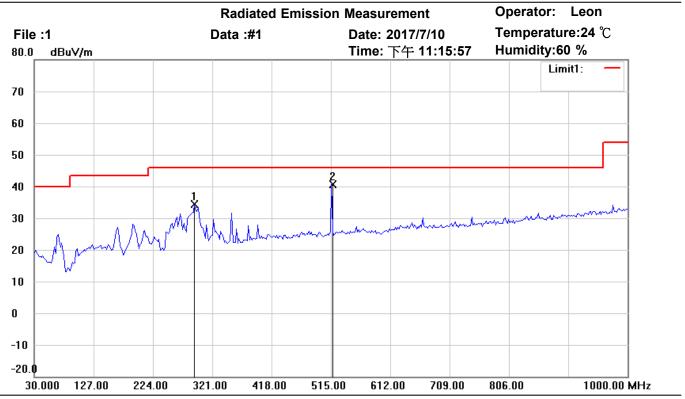
## **Appendix**

## **Measurement diagrams**

Spurious Emissions radiated



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Site: Chamber

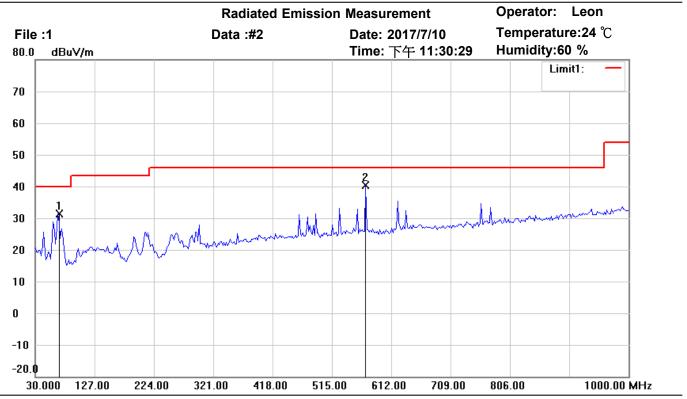
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	292.4248	40.34	peak	-6.06	34.28	46.00	100	60	-11.72	
*	515.9720	43.10	peak	-2.52	40.58	46.00	100	95	-5.42	



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Site: Chamber

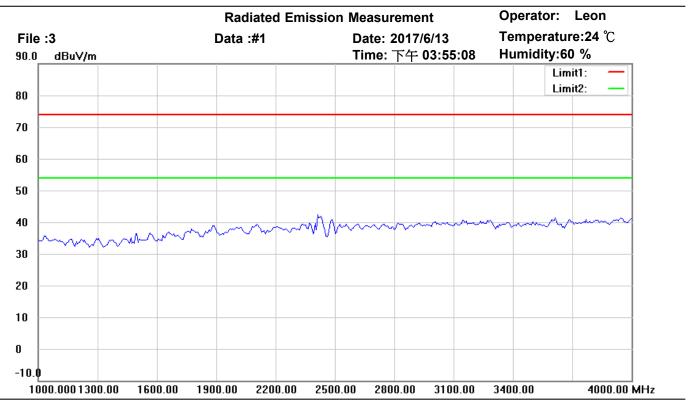
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	66.9340	44.63	peak	-13.23	31.40	40.00	100	260	-8.60	
*	570.4008	42.08	peak	-1.82	40.26	46.00	100	95	-5.74	



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Site: Chamber

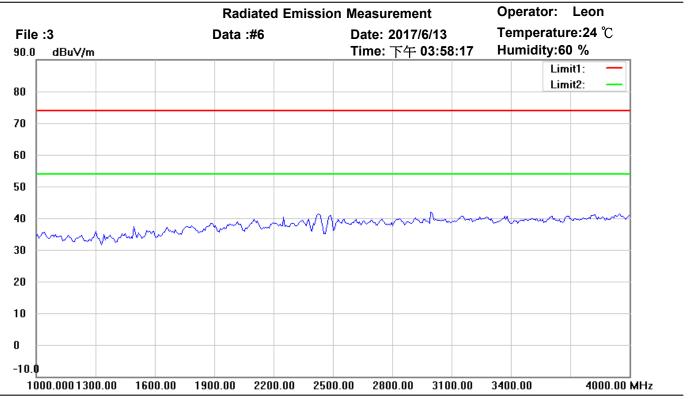
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

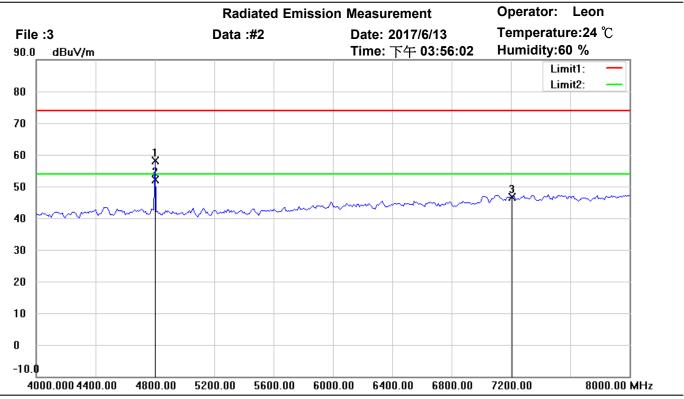
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

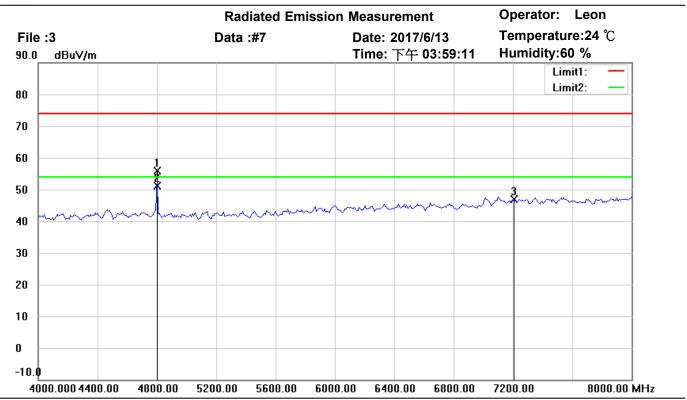
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4801.603	58.09	peak	0.08	58.17	74.00	190	60	-15.83	
*	4801.603	51.98	AVG	0.08	52.06	54.00	190	60	-1.94	
	7206.000	41.66	peak	5.06	46.72	74.00	150	235	-27.28	



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Site: Chamber

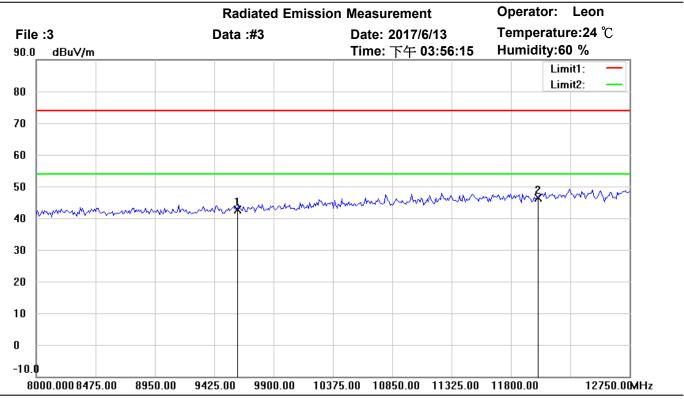
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4801.603	55.69	peak	0.08	55.77	74.00	150	170	-18.23	
*	4801.603	51.10	AVG	0.08	51.18	54.00	150	170	-2.82	
	7206.000	41.92	peak	5.06	46.98	74.00	150	135	-27.02	



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Site: Chamber

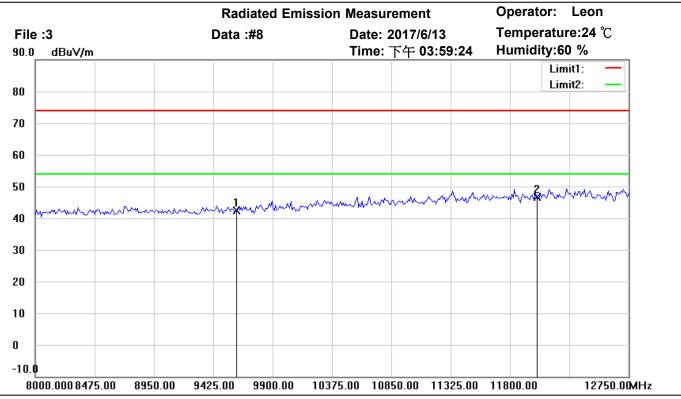
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9608.000	34.64	peak	7.96	42.60	74.00	150	85	-31.40	
*	12010.000	33.58	peak	12.90	46.48	74.00	150	240	-27.52	



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Site: Chamber

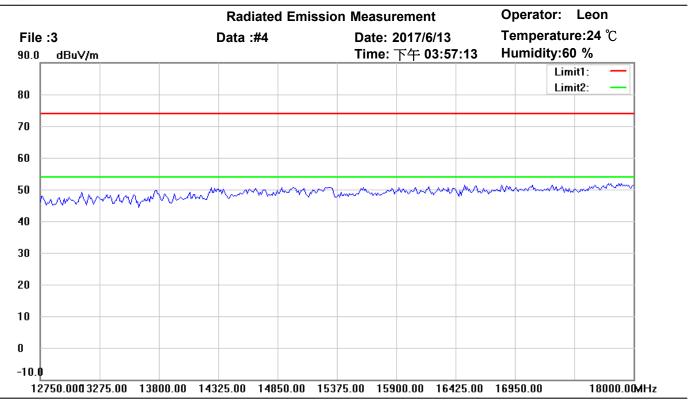
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2402MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9608.000	34.31	peak	7.96	42.27	74.00	150	85	-31.73	
*	12010.000	33.62	peak	12.90	46.52	74.00	150	220	-27.48	



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Site: Chamber

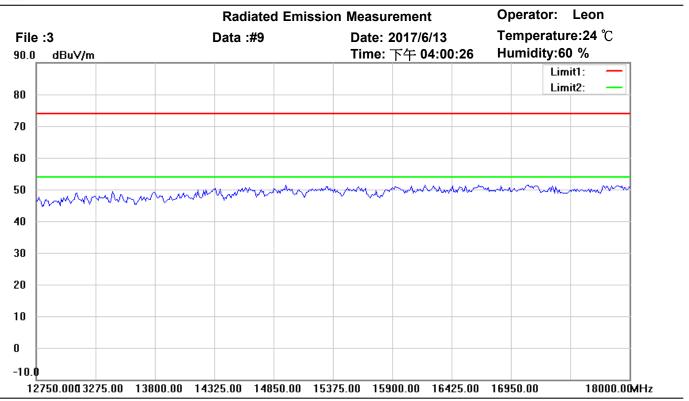
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

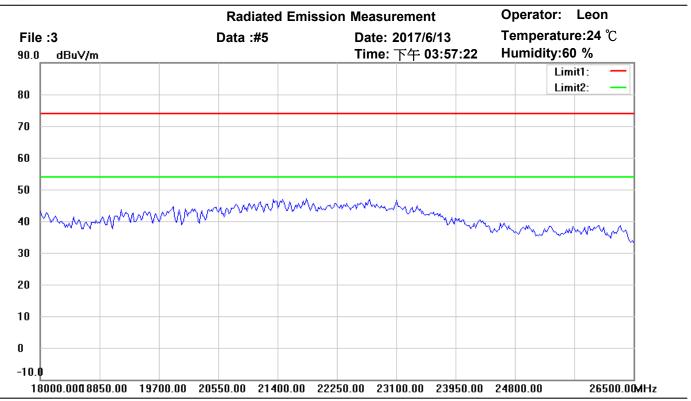
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

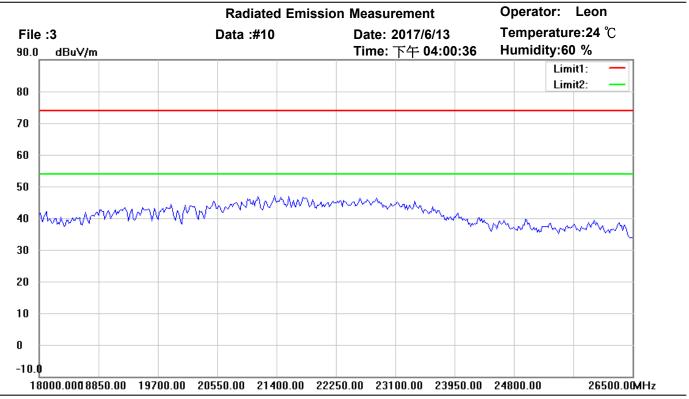
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

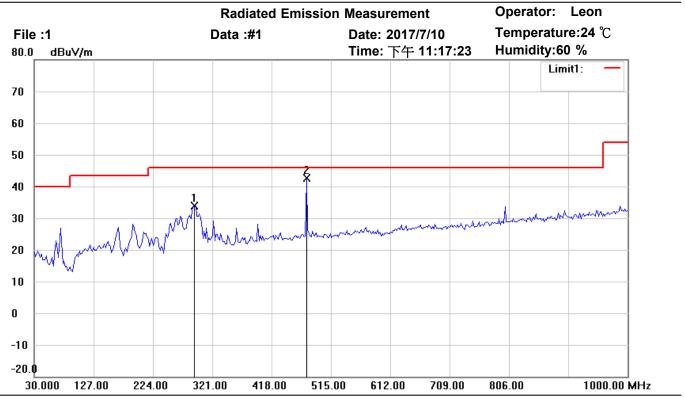
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2402MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

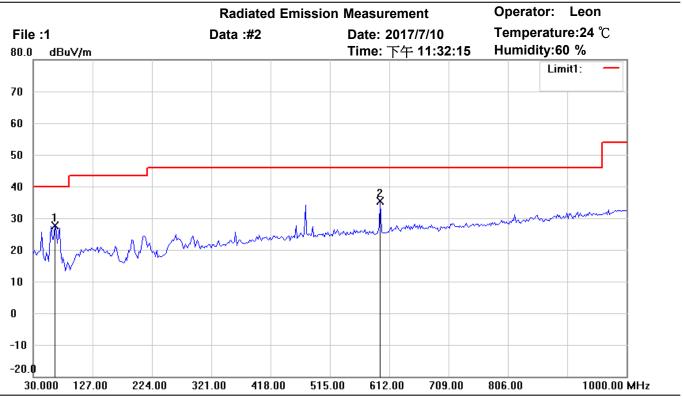
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Horizontal

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	292.4248	39.94	peak	-6.06	33.88	46.00	100	220	-12.12	
*	475.1503	45.51	peak	-2.98	42.53	46.00	100	215	-3.47	



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Site: Chamber

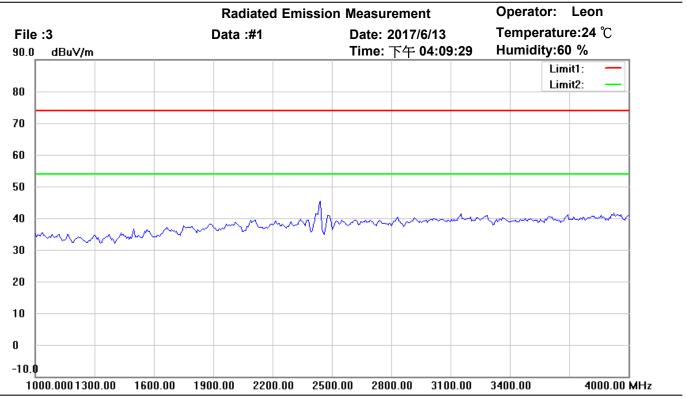
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Vertical

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	64.9900	40.64	peak	-12.91	27.73	40.00	100	55	-12.27	
*	597.6152	37.23	peak	-1.85	35.38	46.00	100	230	-10.62	



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Site: Chamber

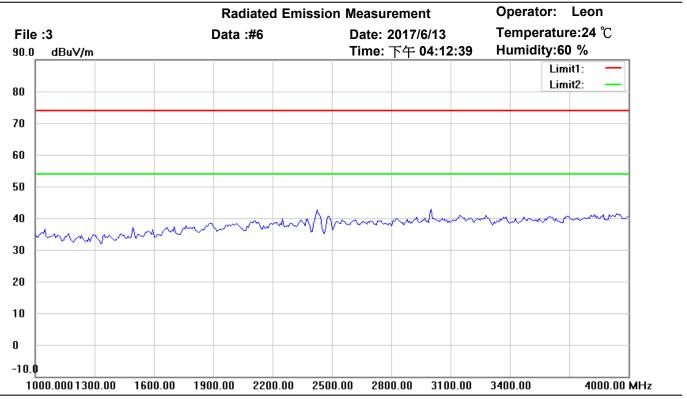
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

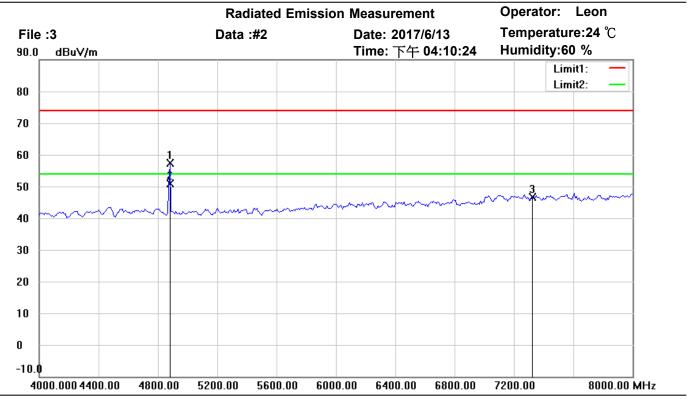
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

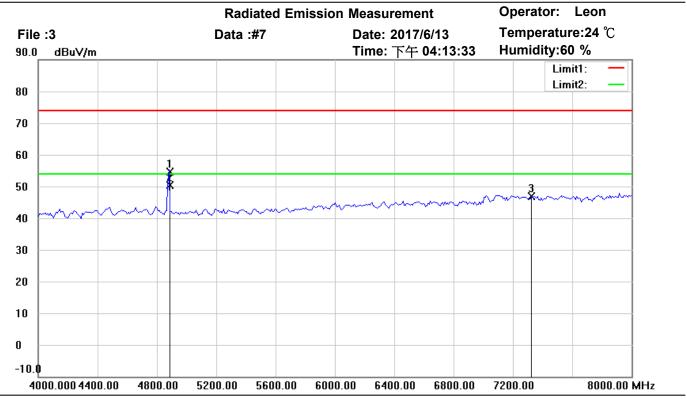
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4873.748	57.26	peak	0.16	57.42	74.00	170	235	-16.58	
*	4873.748	50.73	AVG	0.16	50.89	54.00	170	235	-3.11	
	7320.000	41.49	peak	5.10	46.59	74.00	150	110	-27.41	



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Site: Chamber

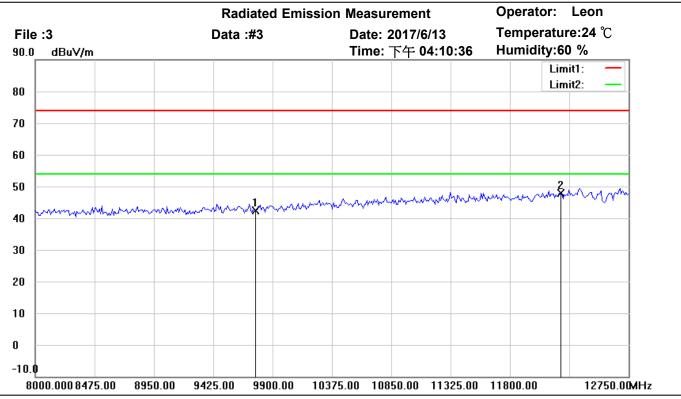
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4881.764	54.39	peak	0.17	54.56	74.00	150	85	-19.44	
*	4881.764	50.27	AVG	0.17	50.44	54.00	150	85	-3.56	
	7320.000	41.81	peak	5.10	46.91	74.00	150	230	-27.09	



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Site: Chamber

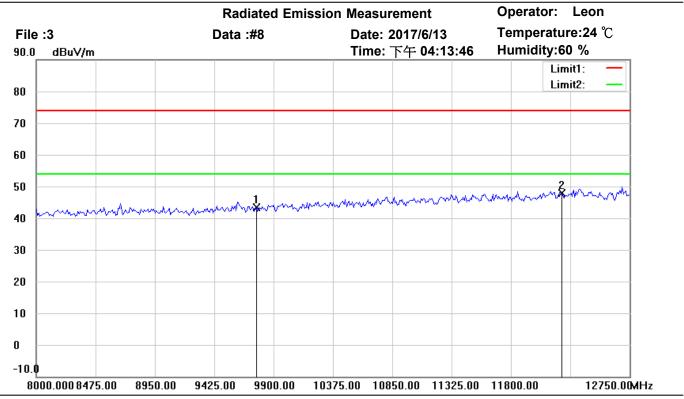
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9760.000	34.11	peak	8.21	42.32	74.00	150	220	-31.68	
*	12200.000	33.80	peak	14.09	47.89	74.00	150	175	-26.11	



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Site: Chamber

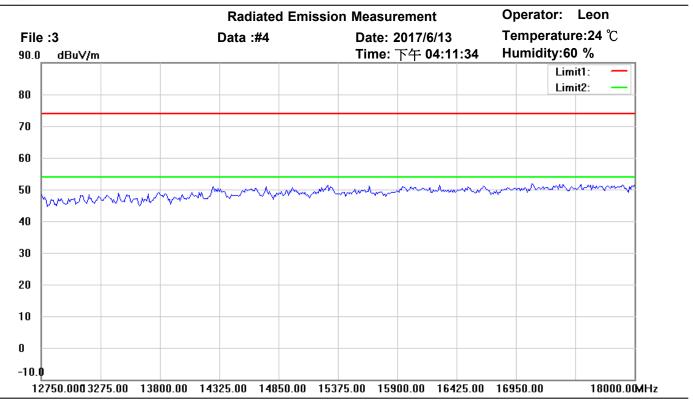
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2440MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9760.000	35.19	peak	8.21	43.40	74.00	150	275	-30.60	
*	12200.000	33.74	peak	14.09	47.83	74.00	150	40	-26.17	



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Site: Chamber

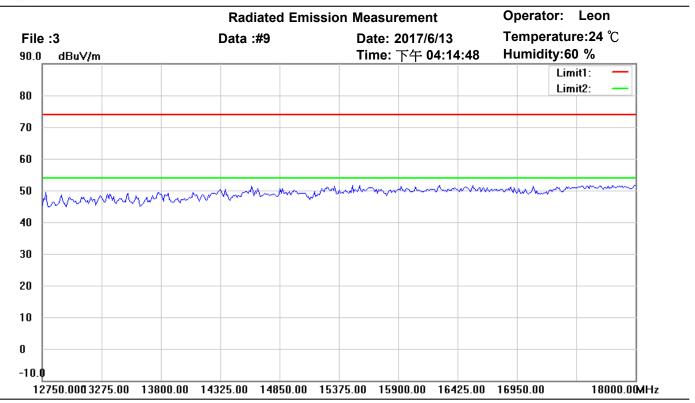
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

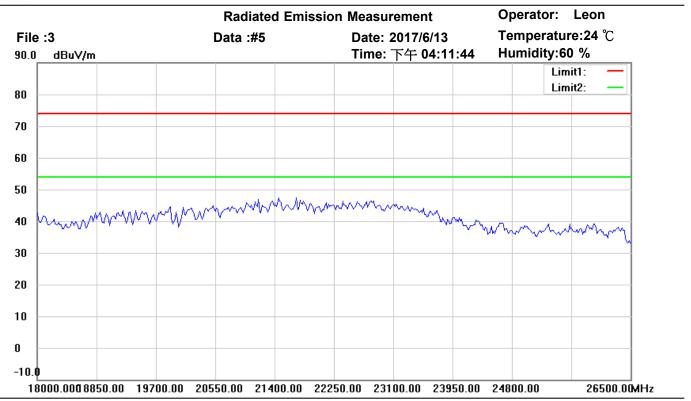
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

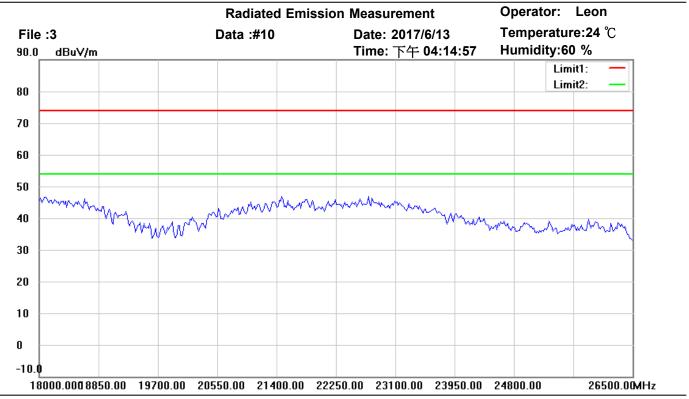
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

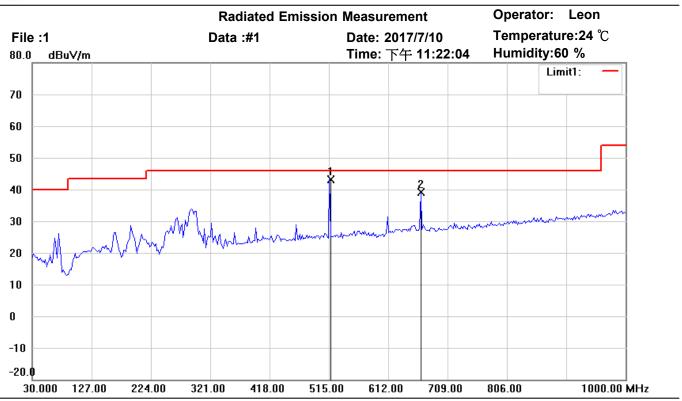
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2440MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

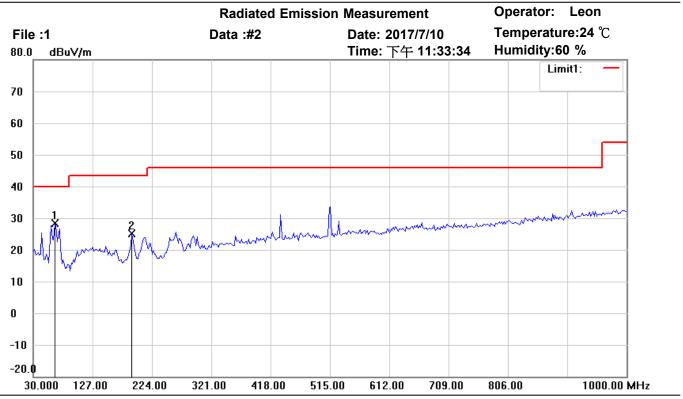
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	515.9720	45.69	peak	-2.52	43.17	46.00	100	175	-2.83	
	665.6513	39.30	peak	-0.25	39.05	46.00	100	80	-6.95	



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Site: Chamber

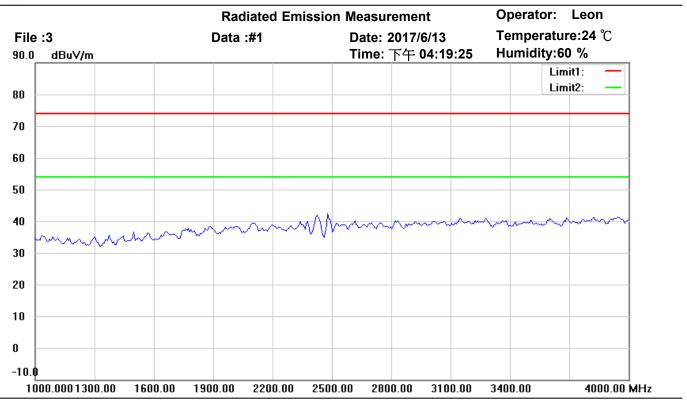
Condition: FCC\_part 15 RE-Class B\_30-1000MHz Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	64.9900	41.27	peak	-12.91	28.36	40.00	100	15	-11.64	
	191.3427	36.21	peak	-11.12	25.09	43.50	100	160	-18.41	



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Site: Chamber

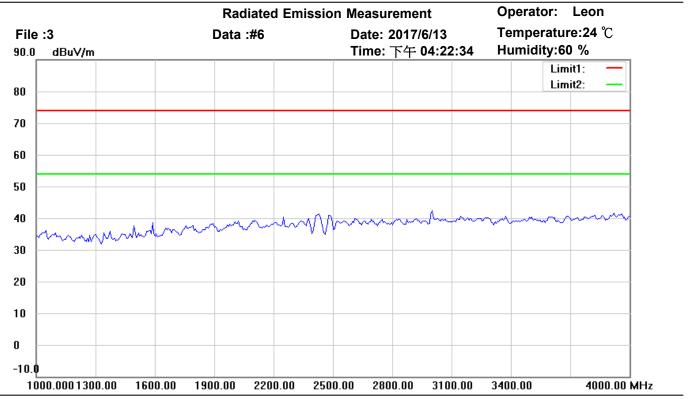
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

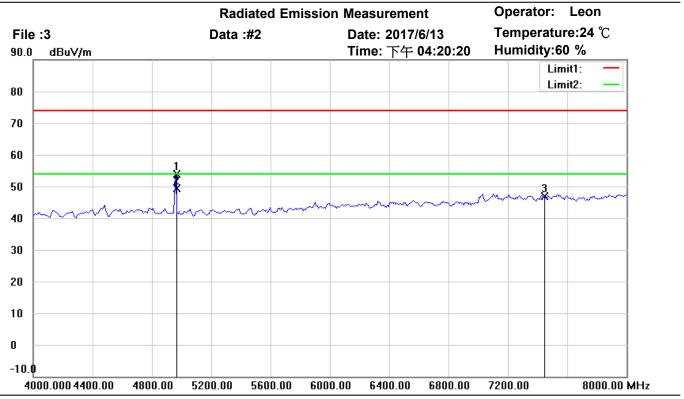
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

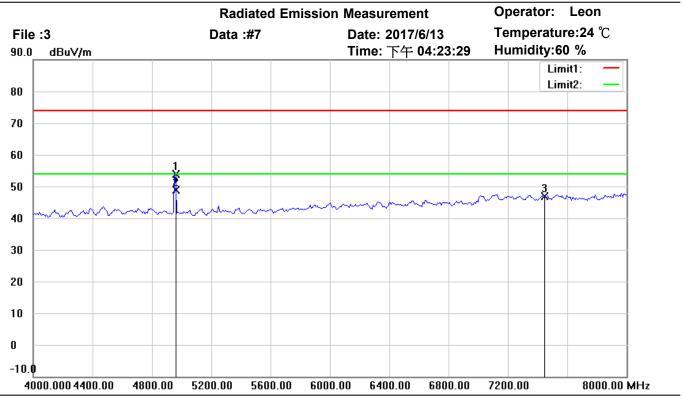
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4961.924	53.57	peak	0.21	53.78	74.00	170	185	-20.22	
*	4961.924	49.26	AVG	0.21	49.47	54.00	170	185	-4.53	
	7440.000	41.78	peak	5.18	46.96	74.00	150	60	-27.04	



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Site: Chamber

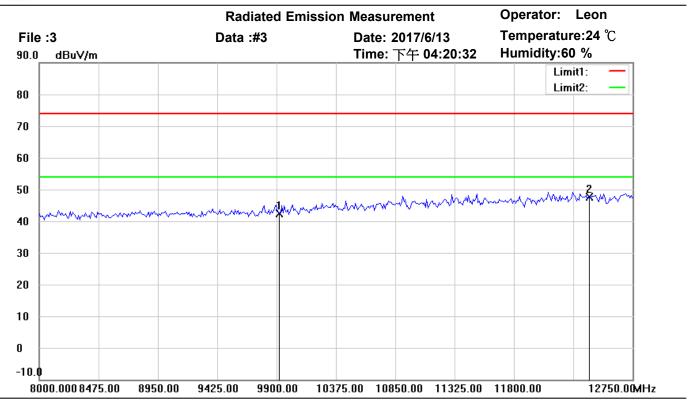
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4953.908	53.66	peak	0.21	53.87	74.00	150	245	-20.13	
*	4953.908	48.72	AVG	0.21	48.93	54.00	150	245	-5.07	
	7440.000	41.67	peak	5.18	46.85	74.00	150	190	-27.15	



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Site: Chamber

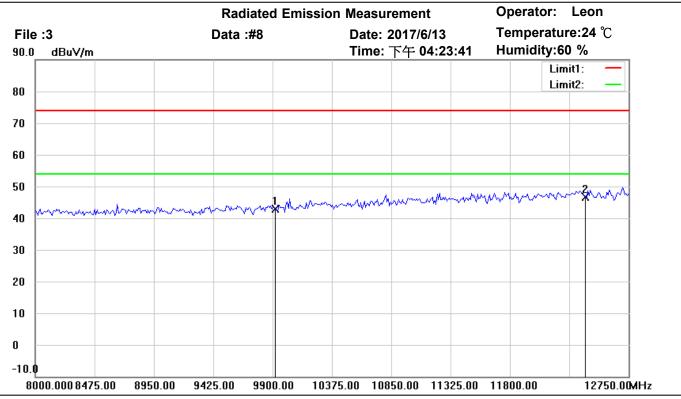
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9920.000	33.92	peak	8.55	42.47	74.00	150	145	-31.53	
*	12400.000	33.19	peak	14.41	47.60	74.00	150	90	-26.40	



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Site: Chamber

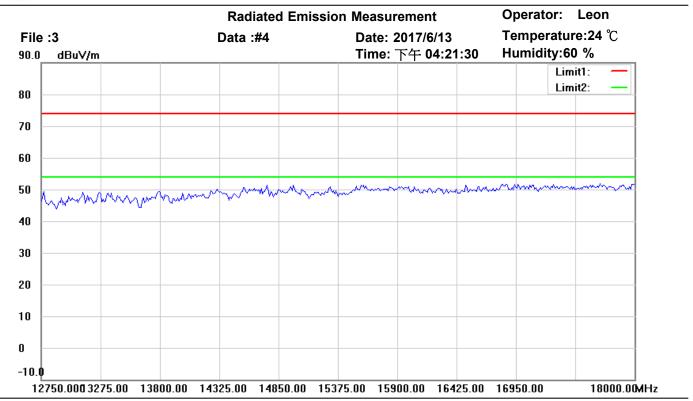
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2480MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9920.000	34.38	peak	8.55	42.93	74.00	150	175	-31.07	
*	12400.000	32.32	peak	14.41	46.73	74.00	150	60	-27.27	



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Site: Chamber

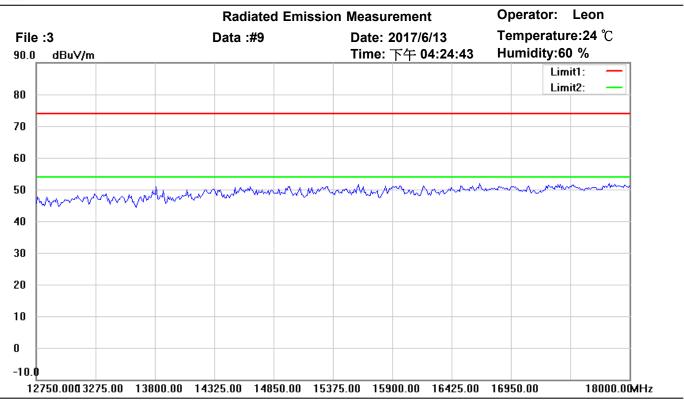
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

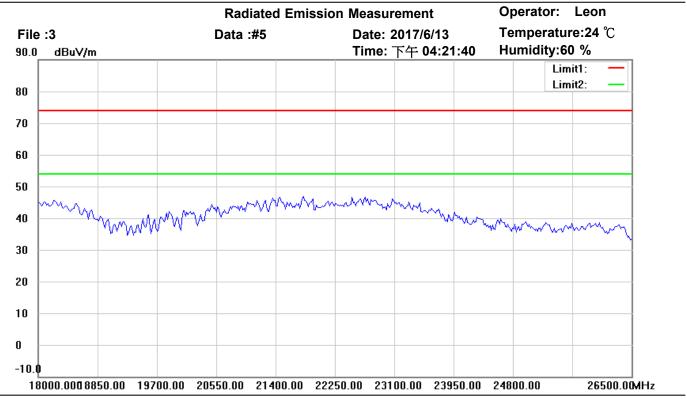
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

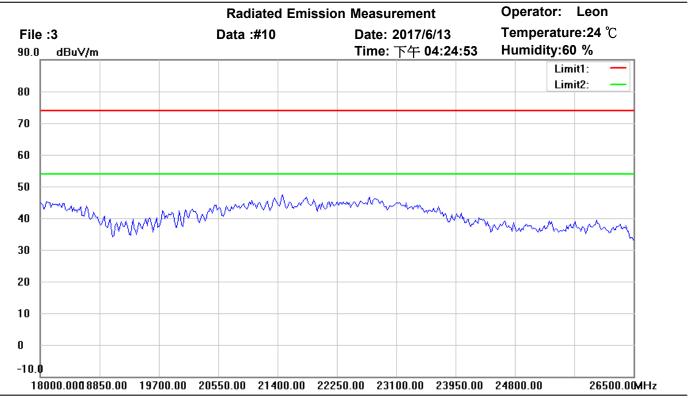
Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Horizontal

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

Condition: FCC\_part 15 RE-Class C\_Above 1GHz\_PK Polarization: Vertical

Test Mode: TX 2480MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	