Product Name:	Service Alarm Button
Model No.:	WD-BU-MB1
Applicant:	Call Systems Technology Ltd Middlesex House,29-45 High Street,Edgware Middlesex, HA8 7UU, U.K.
Date of Receipt:	Jan, 02,2018
Finished date of Test:	May, 15,2018
Applicable Standards:	47 CFR Part 15, Subpart C 15.231 ANSI C63.4: 2014

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Tested By : Dowa , Date: 5. 15. 2018

(Dowa)

Approved By : , Date: 5/15/2018

(Johnson Ho, Director)

Testing Laboratory 1016

FMNG-059_1.1 REPORT

Revisions History

Report No.	Issue Date	Revisions
FCCA18010201	May. 15, 2018	Initial issue

Table of Contents

1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- FCC Registered Test Site Number：TW1016

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- DC 3V form battery was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.

2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Service Alarm Button
MODEL NO.	WD-BU-MB1
POWER SUPPLY	DC power source battery : DC 3.0V
CABLE	NA
CARRIER FREQUENCY	411~480 MHz
NUMBER OF CHANNEL	2761
RATED RF OUTPUT POWER	68.97dBuV/m
MODULATION TYPE	FSK
MODE OF OPERATION	Simplex
ANTENNA TYPE	PCB Printed
ANTENNA GAIN	-3 dBi

NOTE: For more detailed information, please refer to the EUT's specification or user's manual provided by the manufacturer.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID / DOC	REMARK
N/A				

2.3 DESCRIPTION OF TEST MODE

Mode	Frequency
TX1	411 MHz
TX2	433.92 MHz
TX3	480 MHz
Standby	N/A
LINK	N/A

966 chamber Pre-test result summary:

axis	Modulation	Polarizatio	Frequency (MHz)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
X	**LINK**	**H**	**868.27**	**38.44**	**46.00**	**-7.56**
X	**LINK**	**V**	**867.81**	**39.03**	**46.00**	**-6.97**
Y	LINK	H	868.99	37.04	46.00	-8.96
Y	LINK	V	866.95	36.12	46.00	-9.88
Z	LINK	H	869.34	38.05	46.00	-7.95
Z	LINK	V	868.35	38.97	46.00	-7.03

NOTE:
1. Below 1 GHz were pre-tested in chamber and chosen the worst case for conducted and radiated emission test.
2. Above 1 GHz were tested individually.
3. The axis X,Y and Z we evaluate in chamber, the X axis is worst case.

2.4 EUT OPERATING CONDITION

1. Setup the EUT and all peripheral devices .
2. Turn on the power of all equipment and EUT.
3. Set the EUT under continuous transmission condition, TX, Standby

2.5 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2014. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID/DOC	CABLE
1	Alphanumeric Pager	WDIT	M-4LL	DoC	N/A

NOTE: For the actual test configuration, please refer to the photos of testing.

2.6 CHANNEL AND FREQUENCY TABLE

Channel	Frequency (Hz)	Per Channel Space (Hz)	Example (Hz)
CH0 ~ CH2761	411M ~ 480M	25K	411M,411.025M,~,479.975M,480M

3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a wireless product. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C 15.231

ANSI C63.4: 2014

All tests have been performed and recorded as the above standards.

3.1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT RESULTS	RESULTS
15.231(b) 15.209	FUNDERMENTAL & SPURIOUS RADIATED EMISSION	PASS
15.231(c)	20dB bandwidth Limit: 0.25% × Center Frequency	PASS
15.231(a)	RELEASE OR OPERATING TIME Limit: max. 5 seconds	PASS

4 Transmitter

4.1 FUNDERMENTAL & SPURIOUS RADIATED EMISSION TEST

4.1.1 LIMIT

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dBμV/m)
0.009 - 0.490	300	2400/F(KHz)
0.490 - 1.705	30	24000/F(KHz)
1.705 - 30	30	30
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE:

1. 30 dBuV (in 30m) = 70 dBuV (in 3m).
2. Transmitters that require Crystal Controlled Oscillators with values below 30 MHz requires the Test Report to show “Spurious Radiated Emissions” results below 30 MHz per FCC Part 15.33(a).

FCC part15C 15.231(b) limit of fundamental and spurious emissions measurement.

FREQUENCY (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750 (NOTE 5)	125 to 375 (NOTE 7)
174-260	3750	375 (NOTE 7)
260-470	3750 to 12500 (NOTE 6)	375 to 1250
Above 470	12500	1250

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m).
3. In the emission tables above, the tighter limit applies at the band edges.
4. Distance refers to the distance between measuring nstrument, antenna, and the closest point of any part of the device or system.
5. Limit = 20 log(56.81818 x F - 6136.3636) ; F : Fundamental Frequency (MHz)
6. Limit = 20 log(41.667 x F - 7083.3333) ; F : Fundamental Frequency (MHz)
7. Limit = The Limit of Fundamental Frequency – 20dB
8. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

FCC Part 15, Section15.35(b) limit of radiated emission for frequency above 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

4.1.2 TEST EQUIPMENT

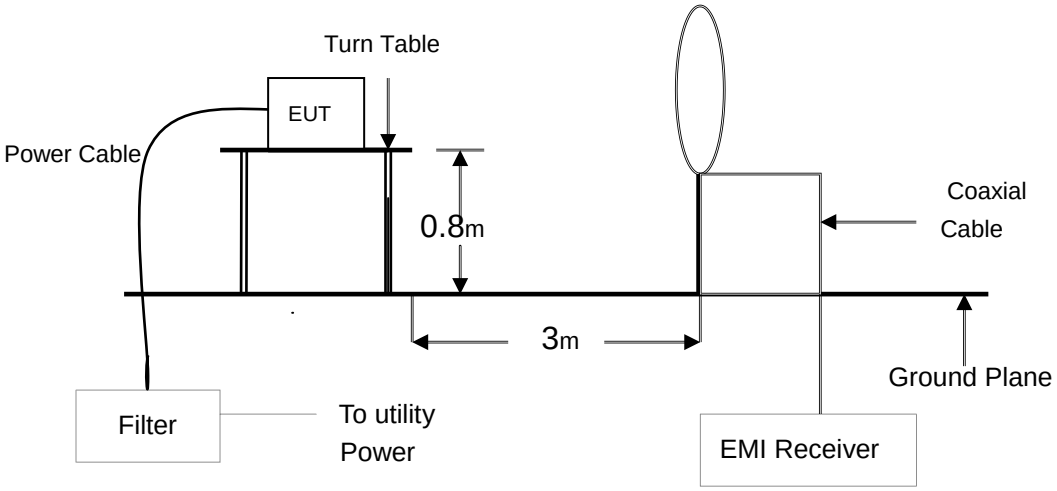
The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	CALIBRATION DATE
EMI TEST RECEIVER	9 kHz ~ 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 100376	JAN. 01, 2019 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	JAN. 01, 2019 ETC
LOOP ANTENNA	9 kHz ~ 30 MHz	ROHDE & SCHWARZ	HFH2-Z2 / 860605/002	FEB. 24, 2019 ETC
BICONICAL ANTENNA	30 MHz ~ 200 MHz	EMCO	3110/ 11966C	MAY 14, 2019 ETC
LOG PERIODIC ANTENNA	200 MHz ~ 1 GHz	EMCO	3146/ 9002-2686	DEC. 24, 2018 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	NOV. 28, 2018 ETC
HORN ANTENNA	18 ~ 40 GHZ	ETS-LINDGREN	3116 /00032255	Jan. 17, 2019 ETC
PRE-AMPLIFIER	0.1 MHz ~ 1.3 GHz	HP	8447D / 2944A06746	DEC. 14, 2018 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 27, 2018 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 09, 2019 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	SEP. 13, 2018 SRT
COAXIAL CABLE	30 M	TIMES	LMR-400 / #30M(L1TCAB014)	MAY 08, 2019 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNER	SF102-46/2*11SK 252 /MY2611/2	MAR. 05, 2019 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNER	SF102/2*11SK252 /MY3331/2	SEP. 28, 2018 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR
THERMO-HYGRO	15 – 40 ℃, 0- 100% RH	TOP	20-A / 7685	SEP. 17, 2018 ETC

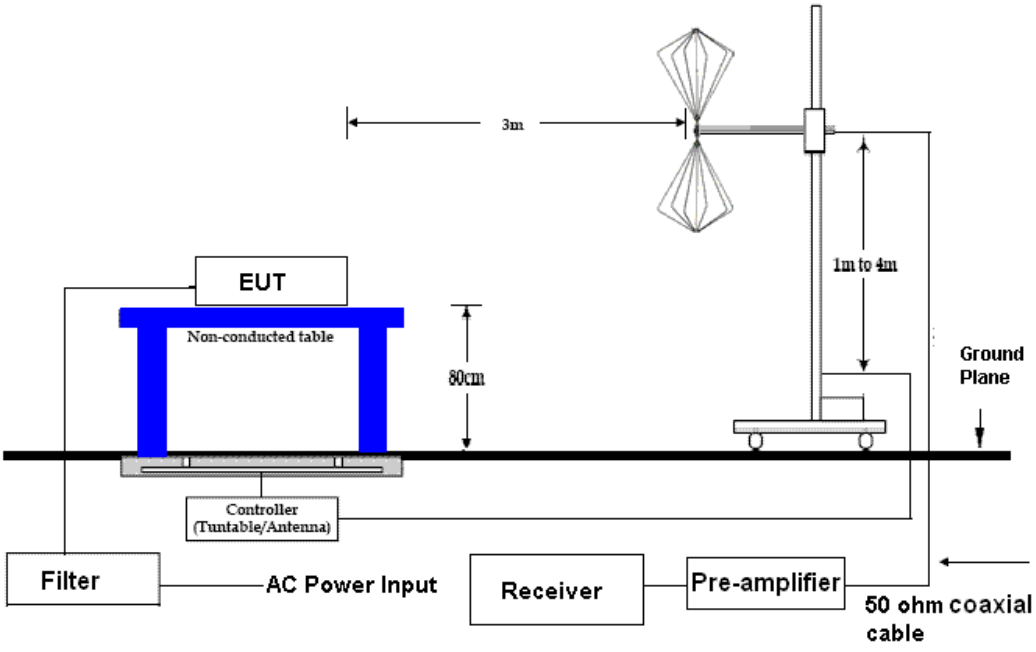
NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST SET-UP

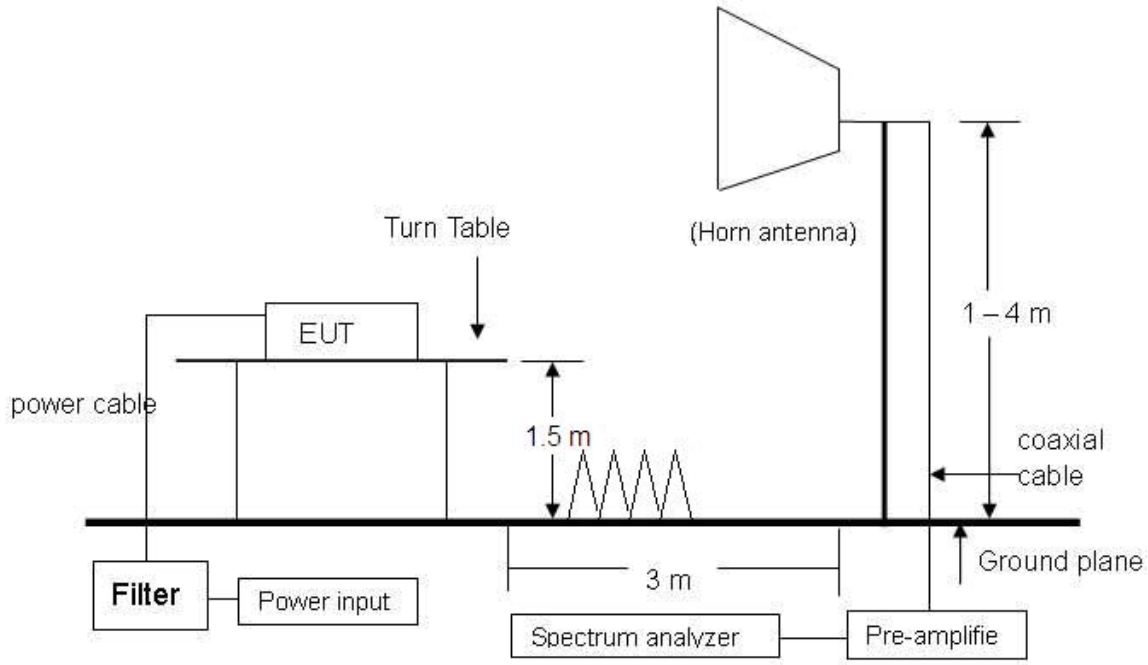
9KHz ~ 30MHz



30 MHz ~ 1 GHz



Above 1 GHz



NOTE: The EUT system was put on a wooden table with 1.5m heights above a ground plane. For the actual test configuration, please refer to the photos of testing.

4.1.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2014 and EN55032:2015.

The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz.

The frequency spectrum measured started from 9kHz to 30MHz and 30 MHz to 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver.

Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver.

The EUT system was operated in all typical methods by users.

The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data.

The procedure is referred on the test procedure of SRT LAB.

4.1.5 TEST RESULT

9KHz ~ 30MHz：

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	9 K – 30 MHz	Tested Mode:	TX1
Receiver Detector:	AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB/m)	Reading (dBμV)	Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.76	0.77	20.15	34.65	55.57	71.63	-16.06
1.42	0.84	20.14	26.84	47.82	56.92	-9.10
3.00	0.95	19.90	11.89	32.74	70.00	-37.26
6.85	1.13	20.55	12.18	33.85	70.00	-36.15
13.84	1.36	21.30	11.25	33.91	70.00	-36.09
22.02	1.56	22.18	8.78	32.53	70.00	-37.47

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	9 K – 30 MHz	Tested Mode:	TX2
Receiver Detector:	AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB/m)	Reading (dBμV)	Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.76	0.77	20.15	33.45	54.37	71.63	-17.26
1.42	0.84	20.14	25.90	46.88	56.92	-10.04
3.43	0.98	20.01	12.97	33.95	70.00	-36.05
10.84	1.27	20.91	10.50	32.67	70.00	-37.33
14.49	1.38	21.38	9.82	32.58	70.00	-37.42
15.90	1.43	21.56	9.79	32.78	70.00	-37.22

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	9 K – 30 MHz	Tested Mode:	TX3
Receiver Detector:	AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB/m)	Reading (dBμV)	Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.76	0.77	20.15	34.49	55.41	71.63	-16.22
1.42	0.84	20.14	26.54	47.52	56.92	-9.40
4.18	1.02	20.19	11.76	32.97	70.00	-37.03
7.96	1.17	20.64	11.00	32.80	70.00	-37.20
8.80	1.20	20.70	10.74	32.64	70.00	-37.36
17.67	1.47	21.79	9.74	33.00	70.00	-37.00

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	9 K – 30 MHz	Tested Mode:	LINK
Receiver Detector:	AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB/m)	Reading (dBμV)	Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.76	0.77	20.15	33.40	54.32	71.63	-17.31
1.42	0.84	20.14	25.57	10.47	56.92	-10.37
3.25	0.97	19.96	12.07	33.00	70.00	-37.00
12.46	1.32	21.12	10.47	32.91	70.00	-37.09
18.30	1.49	21.87	9.51	32.87	70.00	-37.13
20.28	1.54	22.11	9.08	32.73	70.00	-37.27

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	9 K – 30 MHz	Tested Mode:	Standby
Receiver Detector:	AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Frequency (MHz)	Cable Loss (dB)	Ant. Fac. (dB/m)	Reading (dBμV)	Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.76	0.77	20.15	32.65	53.57	71.63	-18.09
1.42	0.84	20.14	24.38	45.36	56.92	-11.56
7.24	1.14	20.58	10.60	32.32	70.00	-37.68
9.19	1.21	20.73	10.38	32.32	70.00	-37.68
16.62	1.45	21.66	9.69	32.79	70.00	-37.21
18.09	1.49	21.84	8.69	32.02	70.00	-37.98

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	TX1
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
57.31	2.23	9.57	28.24	31.49	15.05	40.00	-24.95	190	3.82
86.96	2.34	7.16	28.14	34.29	15.65	40.00	-24.35	200	2.49
518.00	5.09	18.72	28.48	30.75	26.08	46.00	-19.92	294	2.04
663.13	5.90	21.13	28.45	23.06	21.64	46.00	-24.36	140	1.77
752.33	6.42	22.10	28.23	23.14	23.42	46.00	-22.58	288	1.55
996.74	7.91	25.16	27.27	28.21	34.02	54.00	-19.98	137	1.01

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.15	2.23	9.86	28.24	29.46	13.31	40.00	-26.69	26	1.08
78.86	2.28	6.30	28.17	32.78	13.19	40.00	-26.81	62	1.44
171.71	2.88	15.94	27.74	30.25	21.33	43.50	-22.17	313	1.60
222.86	3.21	11.94	27.52	33.64	21.27	46.00	-24.73	319	3.12
716.42	6.20	21.86	28.34	23.52	23.24	46.00	-22.76	44	3.42
811.85	6.74	22.64	28.04	22.46	23.79	46.00	-22.21	359	3.45

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	TX2
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.49	2.23	9.86	28.24	28.60	12.45	40.00	-27.55	305	3.85
192.91	3.01	15.92	27.63	25.02	16.33	40.00	-27.17	277	3.40
223.27	3.22	11.96	27.52	32.33	19.99	46.00	-26.01	286	2.00
518.88	5.09	18.72	28.48	36.30	31.62	46.00	-14.38	341	1.71
765.30	6.49	22.12	28.20	23.01	23.42	46.00	-22.58	82	1.41
990.91	7.87	25.26	27.29	27.78	33.62	54.00	-20.38	113	1.09

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
55.88	2.22	10.15	28.24	29.93	14.06	40.00	-25.94	233	1.04
171.47	2.88	15.94	27.74	30.04	21.12	40.00	-22.38	227	1.48
497.66	4.97	18.88	28.45	32.85	28.24	43.50	-17.76	350	2.18
613.75	5.62	20.31	28.53	25.82	23.21	46.00	-22.79	10	2.91
737.58	6.33	21.95	28.28	23.40	23.40	46.00	-22.60	36	3.40
993.93	7.89	25.21	27.28	27.65	33.47	46.00	-20.53	341	3.59

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	TX3
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
55.23	2.22	10.15	28.24	28.60	12.73	40.00	-27.27	257	3.92
155.05	2.80	15.05	27.82	25.56	15.59	43.50	-27.91	248	3.61
222.30	3.21	11.94	27.52	30.70	18.33	46.00	-27.67	56	3.40
627.95	5.70	20.53	28.51	24.80	22.52	46.00	-23.48	217	2.15
735.90	6.32	21.94	28.29	23.21	23.19	46.00	-22.81	50	1.81
846.23	6.96	23.35	27.90	22.76	25.18	46.00	-20.82	304	1.47

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
55.58	2.22	10.15	28.24	29.26	13.39	40.00	-26.61	49	1.08
155.57	2.80	15.05	27.82	27.99	18.02	43.50	-25.48	274	1.39
168.71	2.86	15.78	27.75	30.75	21.64	43.50	-21.86	229	1.43
223.15	3.22	11.96	27.52	30.90	18.56	46.00	-27.44	209	1.60
679.38	5.99	21.42	28.42	23.01	22.00	46.00	-24.01	157	3.01
770.41	6.51	22.16	28.18	22.54	23.03	46.00	-22.97	235	3.29

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit
.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Standby
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
57.70	2.23	9.57	28.24	31.29	14.85	40.00	-25.15	200	3.76
411.76	4.53	17.02	28.01	27.42	20.96	46.00	-25.04	310	2.82
676.85	5.97	21.37	28.43	33.77	32.68	46.00	-13.33	216	2.00
744.37	6.37	22.02	28.26	25.35	25.48	46.00	-20.52	184	1.79
805.99	6.70	22.46	28.07	24.07	25.17	46.00	-20.83	102	1.60
984.20	7.83	25.12	27.32	29.19	34.82	54.00	-19.18	234	1.04

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
40.82	2.12	15.10	28.29	33.76	22.70	40.00	-17.30	109	1.04
56.39	2.23	9.86	28.24	38.05	21.90	40.00	-18.10	97	1.37
185.34	2.97	16.55	27.67	33.87	25.72	43.50	-17.78	219	1.89
412.12	4.54	17.04	28.01	32.01	25.57	46.00	-20.43	267	2.18
771.54	6.52	22.17	28.18	24.86	25.37	46.00	-20.63	181	3.29
858.66	7.04	23.53	27.85	25.43	28.15	46.00	-17.85	147	3.56

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	LINK
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
222.68	3.21	11.94	27.52	32.90	20.53	46.00	-25.47	298	3.40
491.47	4.94	18.43	28.42	26.18	21.13	46.00	-24.87	269	2.58
626.10	5.69	20.52	28.51	24.88	22.58	46.00	-23.42	147	2.16
681.30	6.00	21.46	28.42	23.97	23.01	46.00	-23.00	343	1.98
762.34	6.47	22.10	28.20	23.89	24.25	46.00	-21.75	171	1.73
868.27	7.11	23.61	27.80	35.53	38.44	46.00	-7.56	70	1.41

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
176.48	2.91	16.14	27.71	28.98	20.32	43.50	-23.18	118	1.45
651.00	5.84	20.47	28.47	24.41	22.25	46.00	-23.76	116	2.92
703.18	6.12	21.67	28.38	24.79	24.20	46.00	-21.80	46	3.08
782.80	6.58	22.26	28.14	23.78	24.47	46.00	-21.53	137	3.33
867.81	7.10	23.60	27.81	36.14	39.03	46.00	-6.97	186	3.59
921.84	7.44	24.01	27.58	22.26	26.13	46.00	-19.87	54	3.76

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX1
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2875.81	-30.93	29.93	47.31	37.07	46.31	36.07	74	54	-27.69	-17.93	12	2.18
3400.24	-30.22	30.88	49.93	39.70	50.59	40.36	74	54	-23.41	-13.64	349	1.94
3698.64	-29.90	31.63	42.60	32.38	44.33	34.11	74	54	-29.67	-19.89	4	1.78
4609.38	-28.97	32.88	42.69	32.57	46.61	36.49	74	54	-27.39	-17.51	103	1.42
5000.13	-28.40	33.90	41.05	30.26	46.55	35.76	74	54	-27.45	-18.24	288	1.30
5485.24	-28.42	34.29	43.47	33.26	49.34	39.13	74	54	-24.66	-14.87	19	1.15

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3288.15	-30.39	30.75	46.31	36.13	46.66	36.48	74	54	-27.34	-17.52	330	1.32
3699.69	-29.90	31.64	47.80	37.46	49.53	39.19	74	54	-24.47	-14.81	127	1.81
4110.07	-29.53	32.60	45.85	35.53	48.92	38.60	74	54	-25.08	-15.40	93	1.93
4625.20	-28.95	32.93	48.23	37.39	52.21	41.37	74	54	-21.79	-12.63	216	2.09
4999.83	-28.40	33.90	46.42	36.28	51.92	41.78	74	54	-22.08	-12.22	227	2.20
5510.12	-28.42	34.30	48.57	37.60	54.45	43.48	74	54	-19.55	-10.52	6	2.35

NOTE :

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX2
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3038.03	-30.77	30.45	49.55	39.49	49.22	39.16	74	54	-24.78	-14.84	168	2.36
3905.69	-29.72	32.30	46.03	35.99	48.60	38.56	74	54	-25.40	-15.44	215	1.81
4339.50	-29.29	32.60	46.08	35.19	49.39	38.50	74	54	-24.61	-15.50	219	1.66
4655.63	-28.90	33.00	48.08	37.25	52.18	41.35	74	54	-21.82	-12.65	294	1.38
4999.66	-28.40	33.90	46.92	36.33	52.42	41.83	74	54	-21.58	-12.17	283	1.30
5490.09	-28.42	34.29	49.28	38.66	55.15	44.53	74	54	-18.85	-9.47	257	1.17

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3036.97	-30.78	30.44	48.14	37.83	47.80	37.49	74	54	-26.20	-16.51	59	1.09
3905.21	-29.72	32.30	45.64	35.40	48.22	37.98	74	54	-25.78	-16.02	283	1.68
4339.77	-29.29	32.60	45.81	35.12	49.11	38.42	74	54	-24.89	-15.58	151	1.92
4560.77	-29.04	32.76	49.05	38.83	52.76	42.54	74	54	-21.24	-11.46	316	2.07
5000.72	-28.40	33.90	47.42	36.65	52.92	42.15	74	54	-21.08	-11.85	127	2.20
5595.03	-28.40	34.30	48.89	38.66	54.79	44.56	74	54	-19.21	-9.44	195	2.32

NOTE :

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX3
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3359.66	-30.28	30.83	47.51	37.04	48.06	37.59	74	54	-25.94	-16.41	51	2.37
3694.28	-29.90	31.62	47.29	36.68	49.01	38.40	74	54	-24.99	-15.60	254	1.69
4320.71	-29.31	32.60	46.46	35.60	49.75	38.89	74	54	-24.25	-15.11	205	1.50
4799.32	-28.69	33.38	46.74	36.44	51.42	41.12	74	54	-22.58	-12.88	314	1.36
4999.52	-28.40	33.90	46.12	35.46	51.62	40.96	74	54	-22.38	-13.04	141	1.30
5485.00	-28.42	34.29	48.94	38.86	54.81	44.73	74	54	-19.19	-9.27	68	1.15

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3360.11	-30.28	30.83	47.38	36.72	47.93	37.27	74	54	-26.07	-16.73	88	1.13
4084.40	-29.55	32.60	47.43	36.46	50.48	39.51	74	54	-23.52	-14.49	356	1.93
4319.20	-29.31	32.60	48.09	37.47	51.38	40.76	74	54	-22.62	-13.24	328	2.00
4799.57	-28.69	33.38	45.87	35.19	50.56	39.88	74	54	-23.44	-14.12	180	2.14
5000.77	-28.40	33.90	45.57	34.87	51.07	40.37	74	54	-22.93	-13.63	146	2.20
5589.54	-28.40	34.30	49.80	38.92	55.70	44.82	74	54	-18.30	-9.18	282	2.38

NOTE :

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Standby
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2840.50	-30.95	29.79	43.42	33.20	42.25	32.03	74	54	-31.75	-21.97	96	1.95
3414.09	-30.20	30.90	42.63	31.63	43.33	32.33	74	54	-30.67	-21.67	267	1.78
4069.64	-29.57	32.60	42.32	31.79	45.35	34.82	74	54	-28.65	-19.18	193	1.58
4609.98	-28.97	32.88	41.68	30.98	45.59	34.89	74	54	-28.41	-19.11	180	1.42
5000.68	-28.40	33.90	39.70	28.71	45.20	34.21	74	54	-28.80	-19.79	256	1.30
5595.43	-28.40	34.30	39.57	28.94	45.47	34.84	74	54	-28.53	-19.16	198	1.12

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3415.71	-30.20	30.90	41.83	31.06	42.53	31.76	74	54	-31.47	-22.24	196	1.72
3629.48	-29.96	31.41	42.01	31.37	43.47	32.83	74	54	-30.53	-21.17	90	1.79
4134.59	-29.50	32.60	41.68	31.02	44.78	34.12	74	54	-29.22	-19.88	262	1.94
4680.90	-28.87	33.07	41.79	31.50	45.99	35.70	74	54	-28.01	-18.30	282	2.10
4999.95	-28.40	33.90	39.88	29.86	45.38	35.36	74	54	-28.62	-18.64	196	2.20
5524.47	-28.42	34.30	39.86	29.48	45.74	35.36	74	54	-28.26	-18.64	333	2.36

NOTE :

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Link
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1299.20	-32.96	25.64	60.09	49.12	52.76	41.79	74	54	-21.24	-12.21	46	2.33
3299.93	-30.38	30.76	42.07	31.53	42.46	31.92	74	54	-31.54	-22.08	297	1.81
3799.86	-29.81	31.96	41.36	30.74	43.50	32.88	74	54	-30.50	-21.12	170	1.66
4730.96	-28.79	33.20	40.74	29.85	45.14	34.25	74	54	-28.86	-19.75	30	1.38
4999.43	-28.40	33.90	38.91	28.13	44.41	33.63	74	54	-29.59	-20.37	11	1.30
5450.02	-28.42	34.26	40.01	29.75	45.85	35.59	74	54	-28.15	-18.41	313	1.16

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1300.97	-32.96	25.64	50.26	39.50	42.95	32.19	74	54	-31.05	-21.81	75	1.09
3259.20	-30.44	30.71	43.07	32.91	43.35	33.19	74	54	-30.65	-20.81	231	1.68
4074.25	-29.56	32.60	42.36	31.43	45.40	34.47	74	54	-28.60	-19.53	93	1.92
4580.06	-29.01	32.81	41.82	30.98	45.61	34.77	74	54	-28.39	-19.23	185	2.07
4999.52	-28.40	33.90	39.35	28.57	44.85	34.07	74	54	-29.15	-19.93	358	2.20
5405.62	-28.42	34.22	39.53	29.02	45.34	34.83	74	54	-28.66	-19.17	272	2.32

NOTE :

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Tested By:	Dowa	Tested Mode:	TX1 (Fundamental)
Receiver Detector:	Q.P. or AV.	Modulation Type:	FSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
411.00	4.53	17.02	28.01	75.43	68.97	80.00	-11.03	337	1.58
822.00	6.81	22.88	28.00	39.89	41.59	46.00	-4.41	271	1.34

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
411.00	4.53	17.02	28.01	70.84	64.38	80.00	-15.62	14	1.25
822.00	6.81	22.88	28.00	36.35	38.05	46.00	-7.95	15	1.72

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX1(Fundamental)
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1233.00	-33.16	25.45	43.99	33.04	36.29	25.34	74	54	-37.71	-28.66	233	2.06
1644.00	-32.13	26.69	33.33	23.06	27.89	17.62	74	54	-46.11	-36.38	229	2.03
2055.00	-31.53	27.97	53.00	42.99	49.43	39.42	74	54	-24.57	-14.58	11	1.38
2466.00	-31.24	28.46	43.05	32.80	40.27	30.02	74	54	-33.73	-23.98	9	1.32

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1233.00	-33.16	25.45	55.31	44.87	47.61	37.17	74	54	-26.39	-16.83	137	1.45
1644.00	-32.13	26.69	40.25	29.51	34.81	24.07	74	54	-39.19	-29.93	135	1.46
2055.00	-31.53	27.97	39.16	28.33	35.59	24.76	74	54	-38.41	-29.24	124	1.60
2466.00	-31.24	28.46	35.88	25.40	33.10	22.62	74	54	-40.90	-31.38	201	2.14

NOTE:

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	TX2 (Fundamental)
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
433.92	4.63	17.46	28.12	72.99	66.96	80.82	-13.86	337	1.85
867.84	7.10	23.60	27.81	31.41	34.30	46.00	-11.70	271	1.32

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
433.92	4.63	17.46	28.12	70.33	64.30	80.82	-16.52	28	1.48
867.84	7.10	23.60	27.81	27.98	30.87	46.00	-15.13	141	2.18

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX2(Fundamental)
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1301.76	-32.95	25.64	51.30	41.06	43.99	33.75	74	54	-30.01	-20.25	206	2.19
1735.68	-31.99	27.00	40.93	30.02	35.94	25.03	74	54	-38.06	-28.97	197	1.97
2169.60	-31.45	28.10	53.34	42.68	49.99	39.33	74	54	-24.01	-14.67	28	1.38
2603.52	-31.14	28.89	44.22	34.18	41.97	31.93	74	54	-32.03	-22.07	49	1.26

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1301.76	-32.95	25.64	54.86	44.72	47.55	37.41	74	54	-26.45	-16.59	137	1.34
1735.68	-31.99	27.00	46.45	35.46	41.46	30.47	74	54	-32.54	-23.53	135	1.46
2169.60	-31.45	28.10	34.15	23.62	30.80	20.27	74	54	-43.20	-33.73	124	1.67
2603.52	-31.14	28.89	40.13	29.82	37.88	27.57	74	54	-36.12	-26.43	201	2.21

NOTE:

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	TX3 (Fundamental)
Receiver Detector:	Quasi-peak	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
480.00	4.88	18.22	28.37	70.25	64.98	81.94	-16.96	116	1.60
960.00	7.69	24.54	27.42	40.08	44.89	46.00	-1.11	132	1.05

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pre-Amp (dB)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
480.00	4.88	18.22	28.37	69.14	63.87	81.94	-18.07	277	1.27
960.00	7.69	24.54	27.42	39.31	44.12	46.00	-1.88	38	1.57

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	69% RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	TX3(Fundamental)
Receiver Detector:	PK. or AV.	Modulation Type:	FSK
Tested By:	Dowa	Tested Date:	Apr. 18, 2018

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1440.00	-32.54	26.03	45.04	34.80	38.53	28.29	74	54	-35.47	-25.71	214	2.14
1920.00	-31.70	27.63	40.47	30.28	36.40	26.21	74	54	-37.60	-27.79	189	2.03
2400.00	-31.29	28.38	52.30	42.24	49.39	39.33	74	54	-24.61	-14.67	55	1.38
2880.00	-30.92	29.94	42.51	31.99	41.53	31.01	74	54	-32.47	-22.99	98	1.22

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1440.00	-32.54	26.03	54.59	43.82	48.08	37.31	74	54	-25.92	-16.69	148	1.37
1920.00	-31.70	27.63	45.10	34.91	41.03	30.84	74	54	-32.97	-23.16	135	1.46
2400.00	-31.29	28.38	37.31	27.17	34.40	24.26	74	54	-39.60	-29.74	214	1.60
2880.00	-30.92	29.94	39.39	28.90	38.41	27.92	74	54	-35.59	-26.08	150	2.17

NOTE:

1. Measurement uncertainty is 4.04dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

4.2 20dB Bandwidth

4.2.1 LIMIT

FREQUENCY (MHz)	BANDWIDTH LIMIT(kHz)
Above 70-900	0.25% × Center Frequency(MHz)
Above 900	0.5% × Center Frequency(MHz)

NOTE: Bandwidth is determined at the points 20dB down from the modulated carrier.

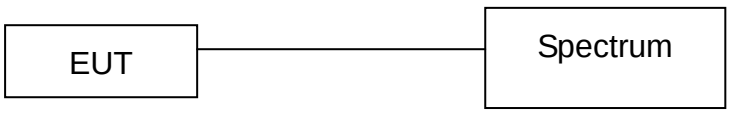
4.2.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAY 21, 2019 ETC

NOTE： The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.2.4 TEST PROCEDURE

Please refer to FCC Part15C 15.231.

4.2.5 EUT OPERATING CONDITION

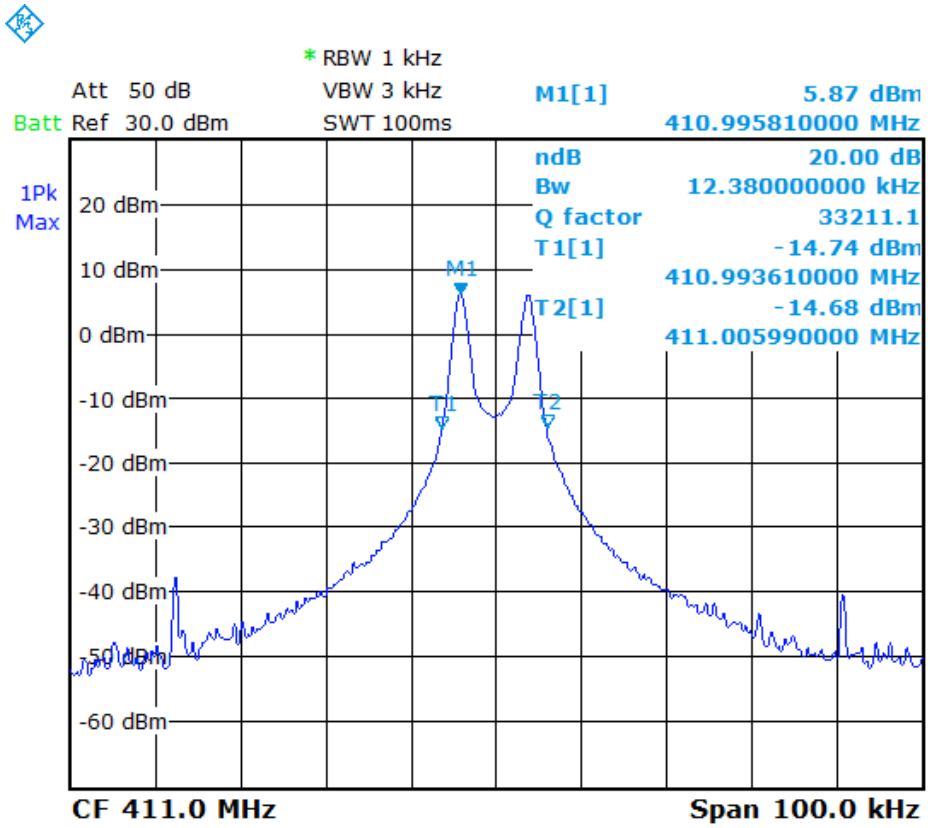
The EUT was operated in continunely transmitting mode.

4.2.6 TEST RESULT

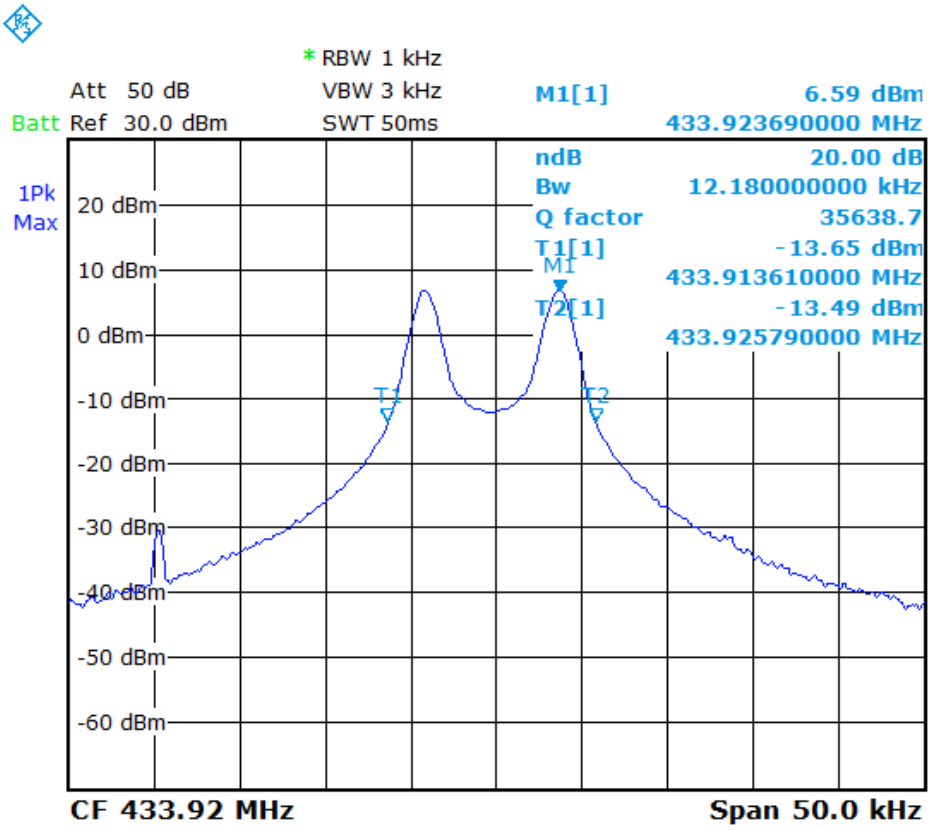
Temperature:	29 °C	Humidity:	66% RH
Spectrum Detector:	PK	Test Mode:	TX1,TX2,TX3
RBW:	1K	VBW:	3K
Tested by:	Dowa	Tested Date:	May. 11, 2018

Channel Number	Channel Frequency (MHz)	20dB Down Bandwidth (kHz)	Maximum Limit (kHz)	Pass/Fail
CH1	411	12.38	1028	Pass
CH918	433.92	12.18	1085	Pass
CH2761	480	12.18	1200	Pass

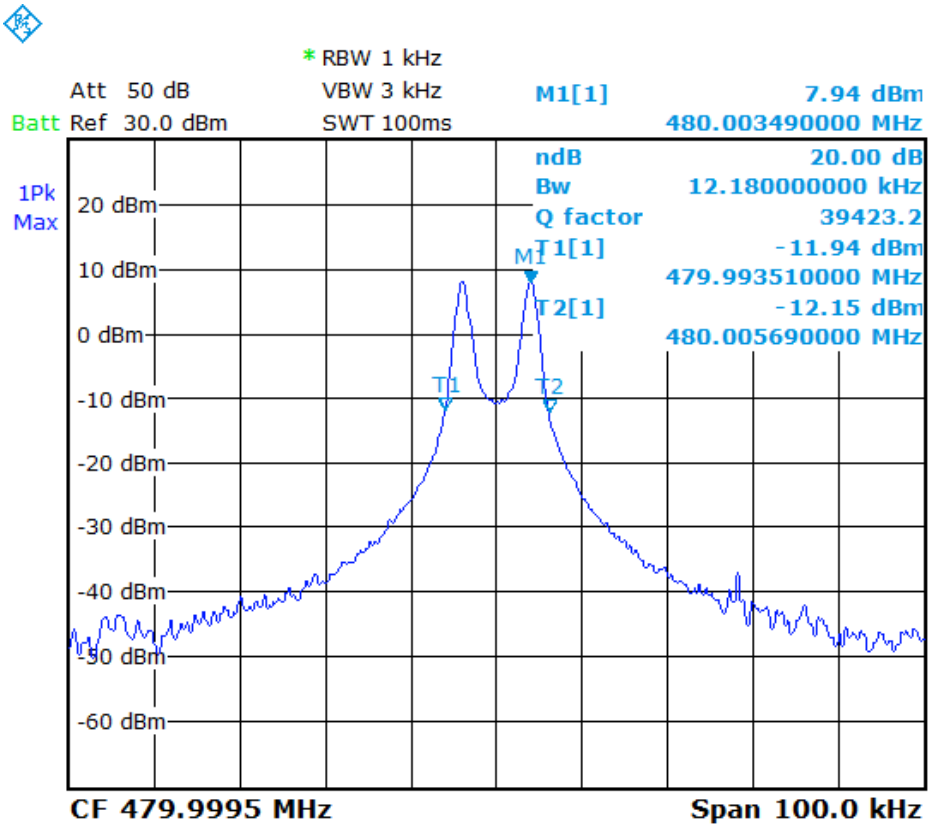
TX1:



TX2:


* RBW 1 kHz
Att 50 dB
VBW 3 kHz
M1[1]
6.59 dBm
Batt Ref 30.0 dBm
SWT 50ms
433.923690000 MHz
ndB
20.00 dB
1Pk
Max
Bw
12.180000000 kHz
Q factor
35638.7
T1[1]
-13.65 dBm
433.913610000 MHz
T2[1]
-13.49 dBm
433.925790000 MHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
T1
T2
CF 433.92 MHz
Span 50.0 kHz

TX3:


* RBW 1 kHz
Att 50 dB
VBW 3 kHz
M1[1]
7.94 dBm
Batt Ref 30.0 dBm
SWT 100ms
480.003490000 MHz
ndB
20.00 dB
1Pk
Max
Bw
12.180000000 kHz
Q factor
39423.2
T1[1]
-11.94 dBm
479.993510000 MHz
T2[1]
-12.15 dBm
480.005690000 MHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
T1
T2
CF 479.9995 MHz
Span 100.0 kHz

4.3 RELEASE OR OPERATING TIME

4.3.1 LIMIT

1. A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

2. A transmitter activated automatically shall cease transmission within 5 seconds after activation.

3). Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.

4. Intentional radiators, which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pungency of the alarm condition.

4.3.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAY 21, 2019 ETC

NOTE： The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST SET-UP

The EUT was connected to a spectrum through a 50Ω RF cable.

4.3.4 EUT OPERATING CONDITION

The EUT was operated in Normal Link mode.

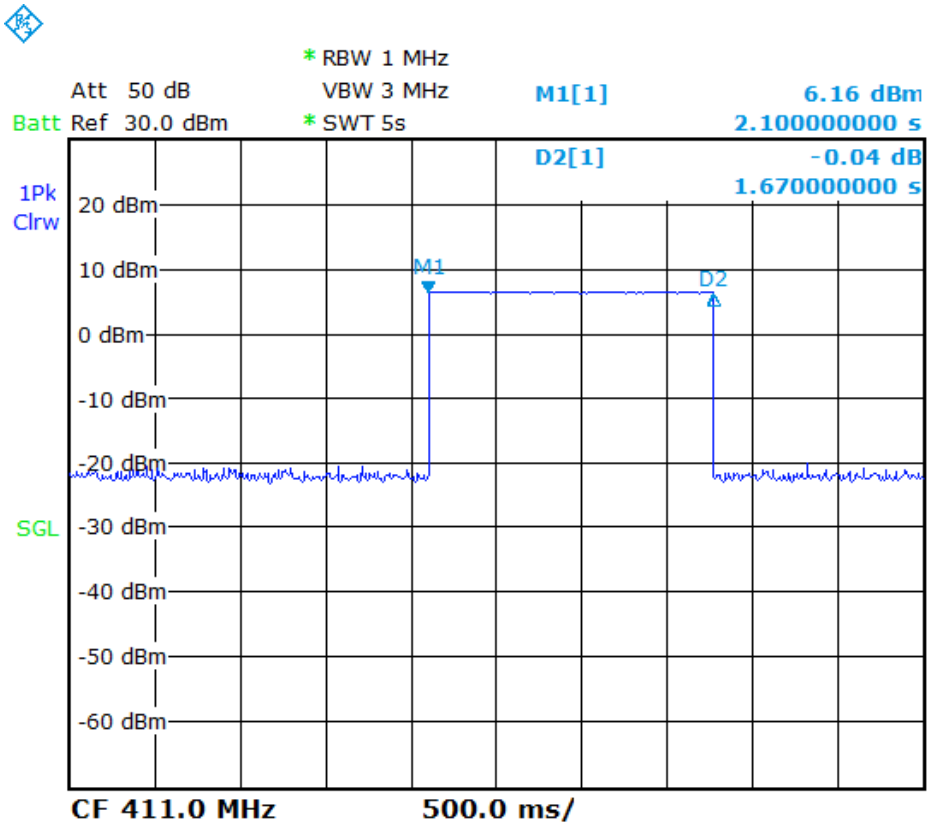
Activation EUT's release time and measurement.

4.3.5 TEST RESULT

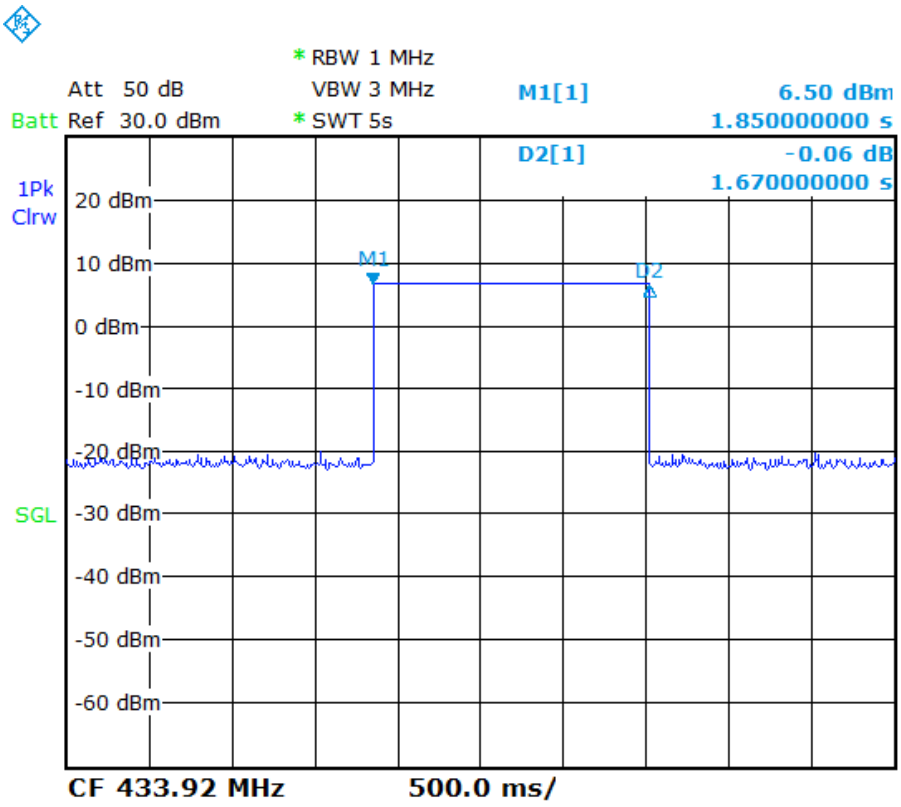
Temperature:	29 °C	Humidity:	66% RH
Spectrum Detector:	PK	Test Mode:	TX1,TX2,TX3
RBW:	1M	VBW:	3M
Tested by:	Dowa	Tested Date:	May. 11, 2018

Channel Number	Total release time(s)	Limit of release time<(s)	Pass/Fail
CH1	1.67	5	Pass
CH918	1.67	5	Pass
CH2761	1.67	5	Pass

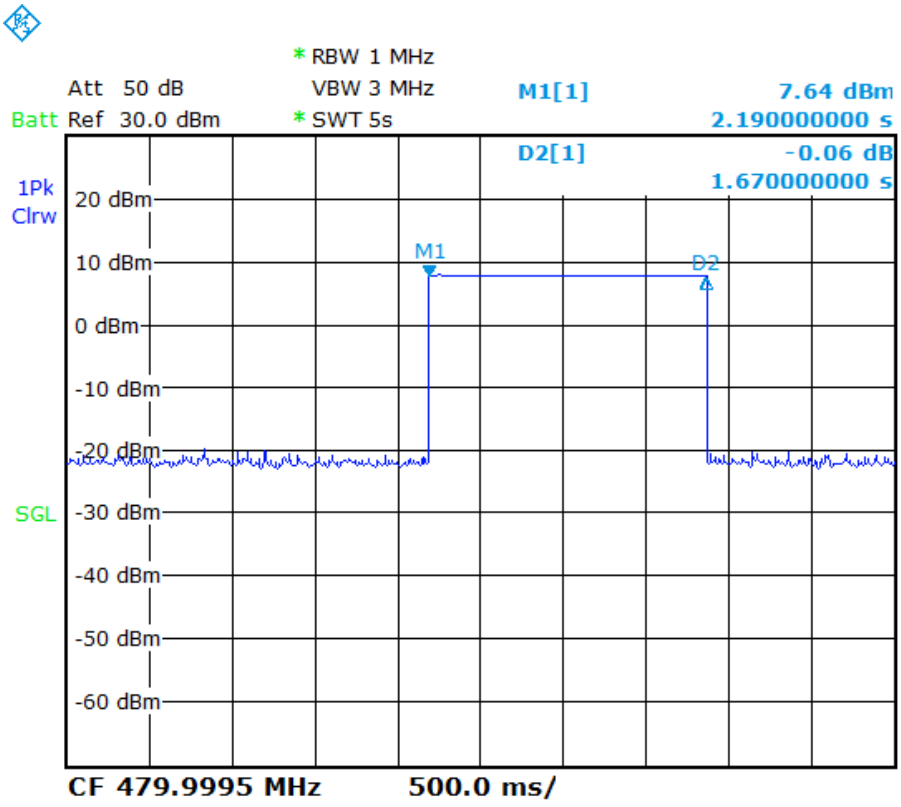
TX1:



TX2:


* RBW 1 MHz
Att 50 dB
VBW 3 MHz
M1[1]
6.50 dBm
Batt Ref 30.0 dBm
* SWT 5s
1.850000000 s
D2[1]
-0.06 dB
1.670000000 s
1Pk
Clrw
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
SGL
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
D2
CF 433.92 MHz
500.0 ms/

TX3:


* RBW 1 MHz
Att 50 dB
VBW 3 MHz
M1[1]
7.64 dBm
Batt Ref 30.0 dBm
* SWT 5s
2.190000000 s
D2[1]
-0.06 dB
1.670000000 s
1Pk
Clrw
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
SGL
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
D2
CF 479.9995 MHz
500.0 ms/

5. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction