



FCC Test Report

Part 15 subpart C

Client Information:

Applicant: SUNLUX IOT TECHNOLOGY(GUANGDONG) INC.
Applicant add.: RM.401, NO.7 KEHUI FIRST STREET, SCIENCE ROAD, SCIENCE CITY, LOUGANG DISTRICT, GUANGZHOU, CHINA.

Product Information:

Product Name: Barcode Scanner
Model No.: XL-9530, XL-9529, XL-9528, XL-9310, XL-9309, XL-9300, XL-9322, XL-9200, XL-9539, XL-9538, XL-9228, XL-9038, XL-960, SCA-009
Brand Name: --
FCC ID: 2AK8MXL9530

Standards: CFR 47 FCC PART 15 SUBPART C:2017 section 231

Prepared By:

UL-CCIC Company Limited

Add. : Electronic Building, Parage Electronic Industrial Park, No. 8 Nanyun Er Road, Guangzhou Science Park, Guangzhou, 510663 China

Date of Receipt: Jan. 05, 2017

Date of Test: Jan. 07~ Feb.20, 2017

Date of Issue: Feb.21, 2017

Test Result: Pass

This device described above has been tested by Dongguan Yaxu(AiT) Technology Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Reviewed by: _____

Approved by: _____



1 Contents

	Page
COVER PAGE	
1 CONTENTS	2
2 TEST SUMMARY	4
2.1 COMPLIANCE WITH FCC PART 15 SUBPART C	4
2.2 MEASUREMENT UNCERTAINTY	4
3 TEST FACILITY.....	5
3.1 DEVIATION FROM STANDARD.....	5
3.2 ABNORMALITIES FROM STANDARD CONDITIONS.....	5
4 GENERAL INFORMATION	6
4.1 GENERAL DESCRIPTION OF EUT	6
4.2 TEST LOCATION	6
5 DESCRIPTION OF TEST CONDITIONS	8
5.1 E.U.T. OPERATION	8
5.2 EUT PERIPHERAL LIST.....	9
5.3 TEST PERIPHERAL LIST	9
6 EQUIPMENTS LIST FOR ALL TEST ITEMS	10
7 TEST RESULT.....	11
7.1 ANTENNA REQUIREMENT	11
7.1.1 Standard requirement	11
7.1.2 EUT Antenna	11
7.2 CONDUCTED EMISSIONS AT MAINS TERMINALS 150 kHz TO 30 MHz.....	12
7.2.1 Test Configuration:.....	12
7.2.2 Test procedure:.....	13
7.2.3 Test results	14
7.3 TRANSMIT TIME.....	16
7.3.1 Applied procedures / Limit	16
7.3.2 Test procedure	16
7.3.3 Deviation from standard.....	16
7.3.4 Test setup	16
7.3.5 Test results	17
7.4 RADIATED EMISSIONS MEASUREMENT	26
7.4.1 Applied procedures / Limit	26
7.4.2 Test procedure	31
7.4.3 Test Configuration:.....	32
7.4.4 Test Result.....	44
7.5 BANDWIDTH TEST	71



7.5.1	Applied procedures / Limit	71
7.5.2	Test procedure	71
7.5.3	Deviation from standard.....	71
7.5.4	Test setup	71
7.5.5	Test results	72
8	PHOTOGRAPHS	78
8.1	RADIATED EMISSION TEST SETUP.....	78
8.2	CONDUCTED EMISSION TEST SETUP.....	79
9	APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	80



2 Test Summary

2.1 Compliance with FCC Part 15 subpart C

Test	Test Requirement	Standard Paragraph	Result
Antenna Requirement	FCC Part 15 C:2017	Section 15.203	PASS
Conduction Emissions	FCC Part 15 C:2017	Section 15.207(a)	PASS
Radiated Emissions	FCC Part 15 C:2017	Section 15.209,15.231(b)	PASS
Occupied Bandwidth	FCC Part 15 C:2017	Section 15.231(c)	PASS
Transmit time	FCC Part 15 C:2017	Section 15.231(a)	PASS

Remark:

EUT: In this whole report EUT means Equipment Under Test.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, the maximum value of the uncertainty as below:

No.	Item	Uncertainty
1	Conducted Emission Test	1.20dB
2	Radiated Emission Test	3.30dB
3	RF power,conducted	0.16dB
4	RF power density,conducted	0.24dB
5	Spurious emissions,conducted	0.21dB
6	All emissions,radiated(<1G)	4.68dB
7	All emissions,radiated(>1G)	4.89dB



3 Test Facility

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

.FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Dongguan Yaxu (AiT) Technology Limited have been registered by Federal Communications Commission (FCC) on Dec.19, 2012.

.Industry Canada(IC)-Registration No: IC6819A-1 & IC6819A-2

The 3m Semi-Anechoic Chamber and 3m/10m Open Area Test Site of Dongguan Yaxu (AiT) Technology Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Nov.07, 2010.

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None



4 General Information

4.1 General Description of EUT

Manufacturer:	SUNLUX IOT TECHNOLOGY(GUANGDONG) INC.
Manufacturer Address:	RM.401, NO.7 KEHUI FIRST STREET, SCIENCE ROAD, SCIENCE CITY, LOUGANG DISTRICT, GUANGZHOU, CHINA.
EUT Name:	Barcode Scanner
Model No.:	XL-9530
Derivative model No.:	XL-9529, XL-9528, XL-9310, XL-9309, XL-9300, XL-9322, XL-9200, XL-9539, XL-9538, XL-9228, XL-9038, XL-960, SCA-009
Model Differences:	All models: XL-9530, XL-9529, XL-9528, XL-9310, XL-9309, XL-9300, XL-9322, XL-9200, XL-9539, XL-9538, XL-9228, XL-9038, XL-960, SCA-009 have same circuit diagram, PCB layout, voltage, power, have similar construction, only shape of enclosure and model number different.
Operation frequency:	433.0-458.5MHz
Modulation Technology:	FSK
Antenna Type:	Integral Antenna
Antenna Gain:	Maximum 0 dBi
Brand Name:	--
H/W No.:	XL-9529_M_V1.2
S/W No.:	00
Serial No.:	N/A
Power Supply Range:	DC 3.7V from battery
Power Supply:	DC 3.7V from battery

4.2 Test Location

All tests were performed at:

Dongguan Yaxu (AiT) Technology Limited
No. 22, Jinqianling Third Street, Jitigang, HuangJiang, Dongguan, Guangdong, China.

Tel.: +86.769.82020499 Fax.: +86.769.82020495



Description of Channel:	
Channel	Frequency (MHz)
00	433.0
01	433.1
02	433.2
	...
126	445.6
127	445.7
128	445.8
	...
253	458.3
254	458.4
255	458.5



5 Description of Test conditions

5.1 E.U.T. Operation

Test Voltage: DC 3.7V from battery (fully-charged battery)

Requirements: **15.31(e):** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Temperature: 20.0 -25.0 °C

Humidity: 38-50 % RH

Atmospheric Pressure: 1000 -1010 mbar

Test frequencies and frequency range: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Test Mode Test the EUT in 3 mode: **1. Trigger Mode 2. Sense Mode 3. Continuous Mode**

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Remark: Test frequency is 433.0MHz, 445.7MHz & 458.5 MHz.



5.2 EUT Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	signal cable
1	AC Adapter	N/A	K15S120100U	N/A	N/A	N/A
2	Barcode Scanner Receiver	SUNLUX IOT TECHNOLOGY(GUANGDONG) INC.	XL-9530	N/A	N/A	N/A
3	RJ45-USB Cable	N/A	N/A	N/A	N/A	N/A

5.3 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	AC Adapter	N/A	N/A	K15S120100U	N/A	N/A	N/A
2	Barcode Scanner Receiver	SUNLUX IOT TECHNOLOGY(GUANGDONG) INC.	N/A	XL-9530	N/A	N/A	N/A



6 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	SIGNAL ANALYZER	R&S	FSV40	101470	2016.06.29	2017.06.28
2	EMI Measuring Receiver	R&S	ESR	101660	2016.06.29	2017.06.28
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2016.06.29	2017.06.28
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2016.06.29	2017.06.28
5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2016.06.29	2017.06.28
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9120D	452	2016.06.29	2017.06.28
7	SHF-EHF Horn	SCHWARZBECK	BBHA9170	BBHA9170367	2016.06.29	2017.06.28
8	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.29	2017.06.28
9	EMI Test Receiver	R&S	ESCI	100124	2016.06.29	2017.06.28
10	LISN	Kyoritsu	KNW-242	8-837-4	2016.06.29	2017.06.28
11	LISN	Kyoritsu	KNW-407	8-1789-3	2016.06.29	2017.06.28
12	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2016.06.29	2017.06.28
13	Loop Antenna	ETS	6512	00165355	2016.06.29	2017.06.28
14	Radiated Cable 1# (30MHz-1GHz)	FUJIKURA	5D-2W	01	2016.12.25	2017.12.24
15	Radiated Cable 2# (1GHz -25GHz)	FUJIKURA	10D2W	02	2016.12.25	2017.12.24
16	Conducted Cable 1#(9KHz-30MHz)	FUJIKURA	1D-2W	01	2016.12.25	2017.12.24
17	SMA Antenna connector	Dosin	Dosin-SMA	N/A	N/A	N/A

Note: The SMA antenna connector is soldered on the PCB board in order to perform conducted tests and this SMA antenna connector is listed in the equipment list.

7 Test Result

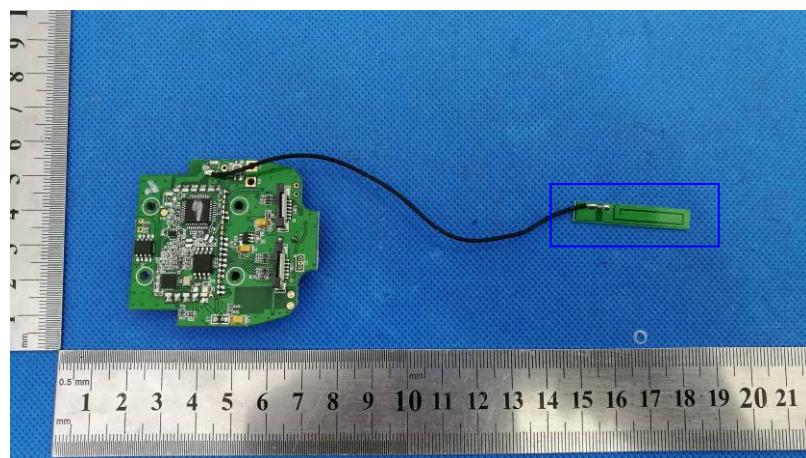
7.1 Antenna Requirement

7.1.1 Standard requirement

15.203 Requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.1.2 EUT Antenna

The antenna is Integral Antenna. The maximum gain of the antenna is 0dBi



Test result: The unit does meet the FCC requirements.

7.2 Conducted Emissions at Mains Terminals 150 kHz to 30 MHz

Test Requirement: FCC Part 15 C section 15.207

Test Method: ANSI C63.10: Clause 6.2

Frequency Range: 150 kHz to 30 MHz

Detector: Peak for pre-scan (9 kHz Resolution Bandwidth)

Test Limit

Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	Class B Limit dB(μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

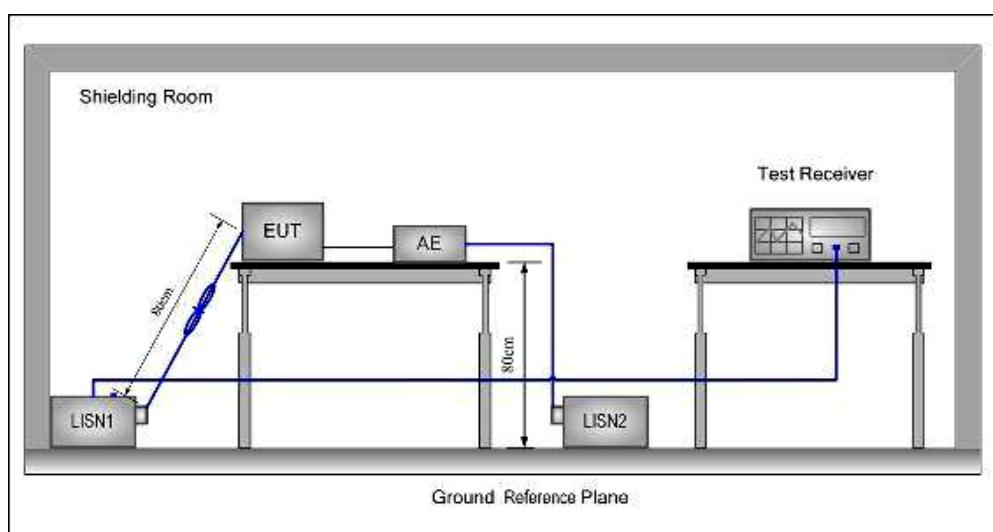
NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.

EUT Operation:

Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

7.2.1 Test Configuration:





7.2.2 Test procedure:

1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

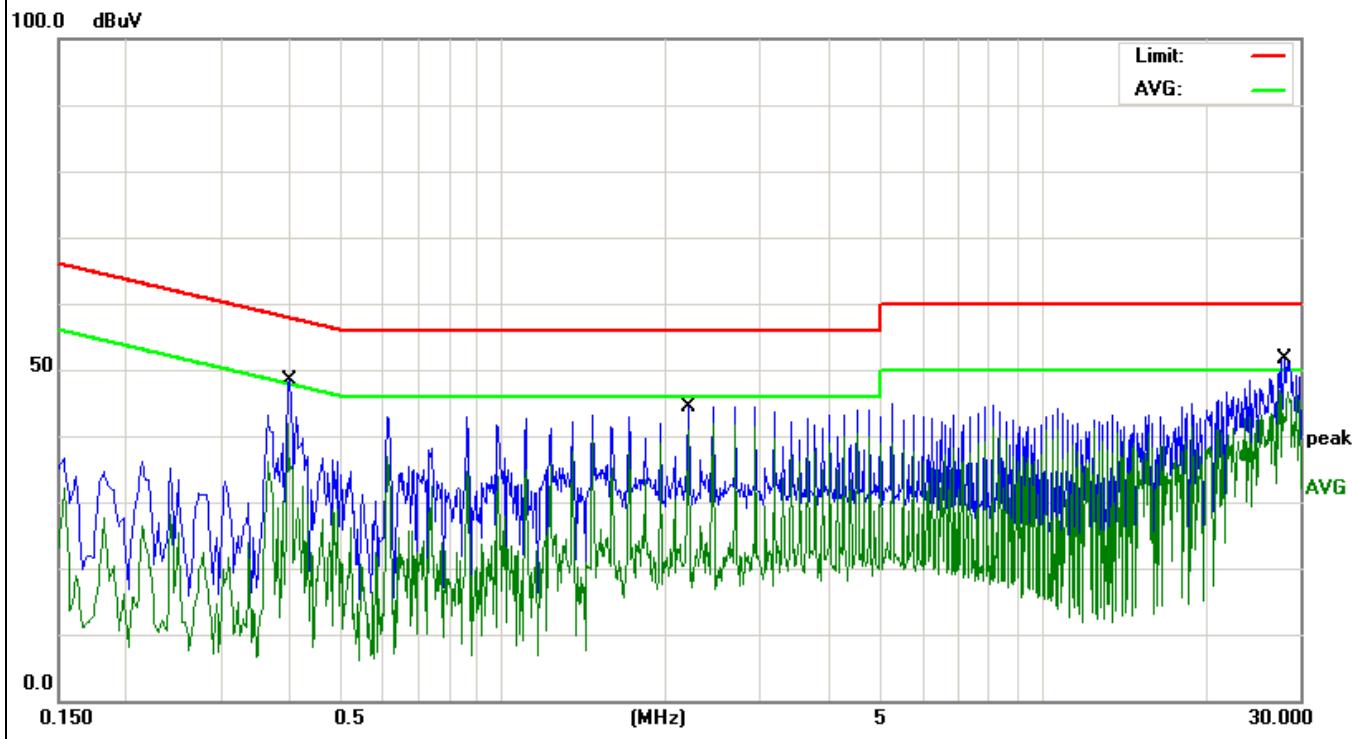


7.2.3 Test results

EUT:	Barcode Scanner	Model Name. :	XL-9530
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date :	2017-02-18
Test Mode:	TX mode 2 CH00 (worst case)	Phase :	Line
Test Voltage:	DC 12V from adapter(for receiver), AC 120V/60Hz for adapter		

Frequency (MHz)	Meter Reading (dB μ V)	Factor(dB)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Detector
0.4015	36.52	10.09	46.61	57.82	-11.21	Quasi-Peak
0.4015	27.16	10.09	37.25	47.82	-10.57	Average
2.2039	32.84	9.96	42.80	56.00	-13.20	Quasi-Peak
2.2039	28.87	9.96	38.83	46.00	-7.17	Average
28.0417	40.86	11.43	52.29	60.00	-7.71	Quasi-Peak
28.0417	33.45	11.43	44.88	50.00	-5.12	Average

Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.

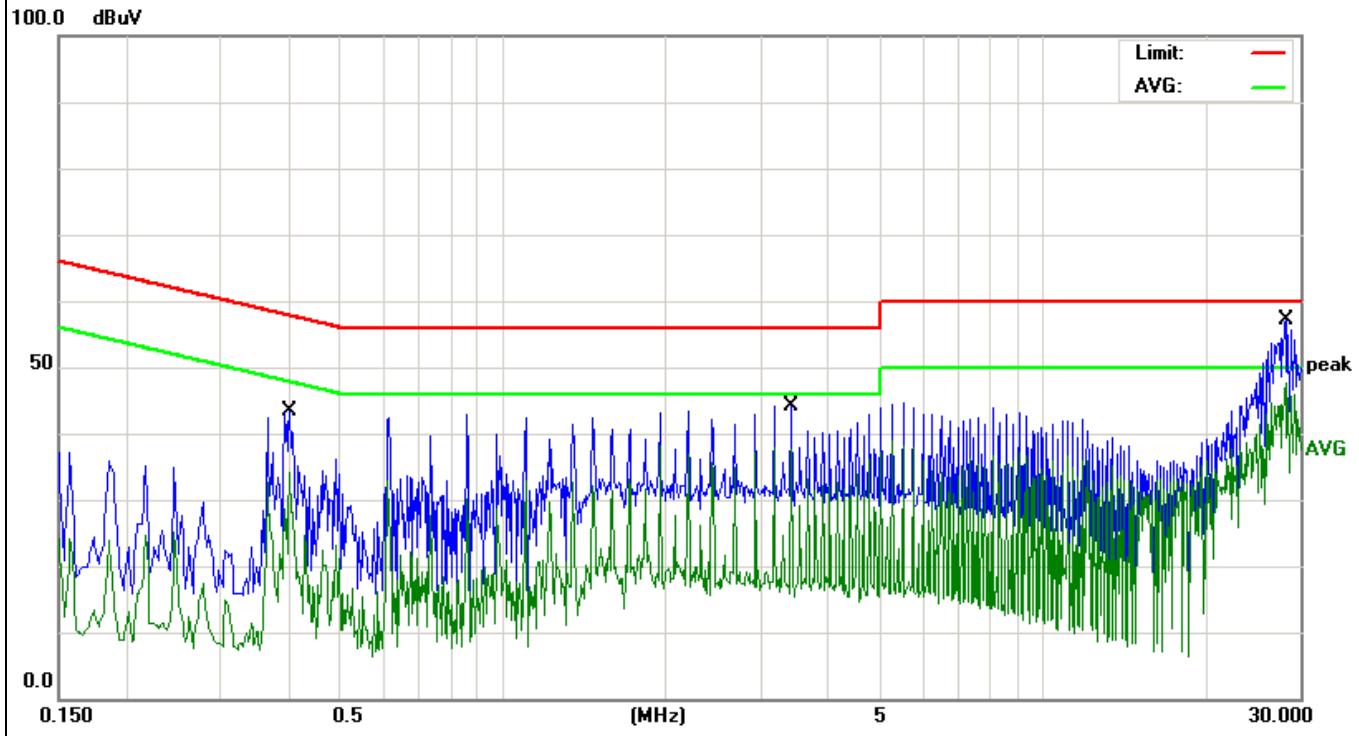




EUT:	Barcode Scanner	Model Name. :	XL-9530
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Date :	2017-02-18
Test Mode:	TX mode 2 CH00 (worst case)	Phase :	Neutral
Test Voltage:	DC 12V from adapter(for receiver), AC 120V/60Hz for adapter		

Frequency (MHz)	Meter Reading (dB μ V)	Factor(dB)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Detector
0.4014	31.62	10.09	41.71	57.82	-16.11	Quasi-Peak
0.4014	20.28	10.09	30.37	47.82	-17.45	Average
3.4293	32.60	9.98	42.58	56.00	-13.42	Quasi-Peak
3.4293	26.28	9.98	36.26	46.00	-9.74	Average
28.286	43.49	11.45	54.94	60.00	-5.06	Quasi-Peak
28.286	31.11	11.45	42.56	50.00	-7.44	Average

Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.



7.3 Transmit time

7.3.1 Applied procedures / Limit

Regulation 15.231 (a) The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

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

7.3.2 Test procedure

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW=100kHz, VBW \geq RBW, Sweep time=10s, Detector Function=Peak.

7.3.3 Deviation from standard

No deviation.

7.3.4 Test setup

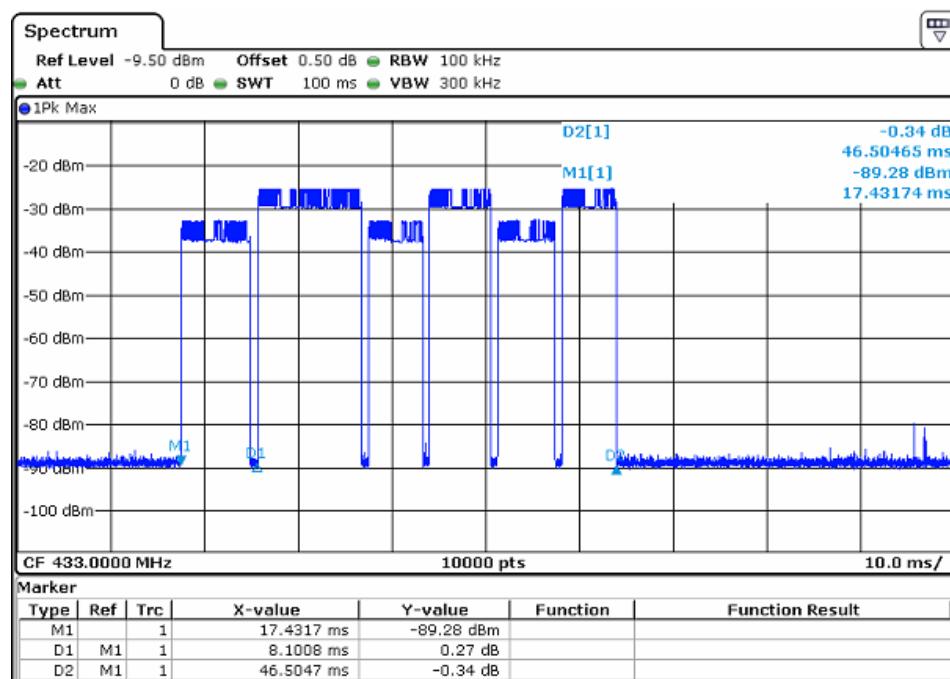


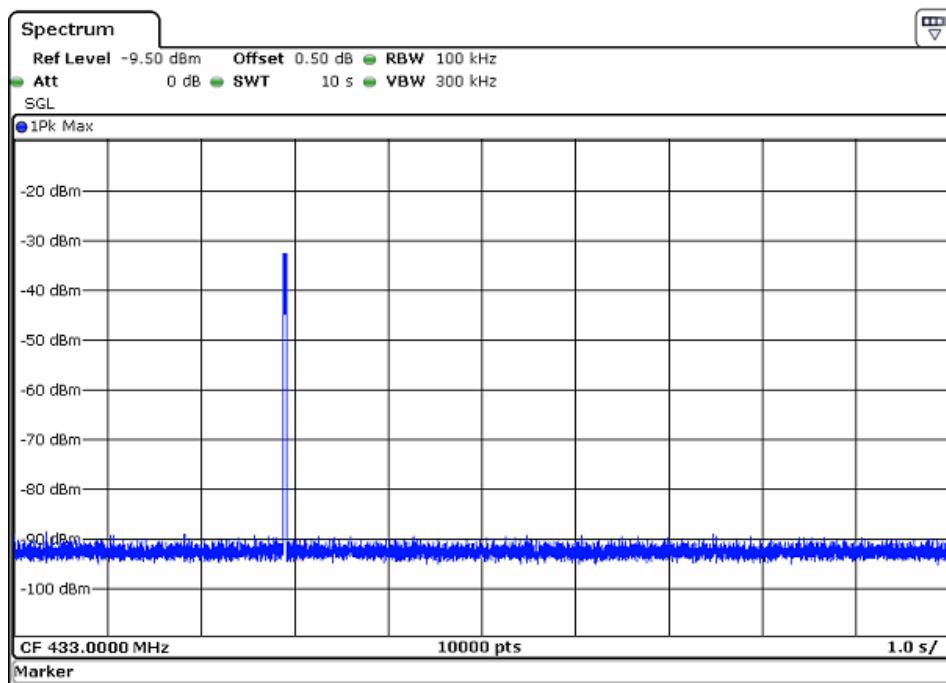
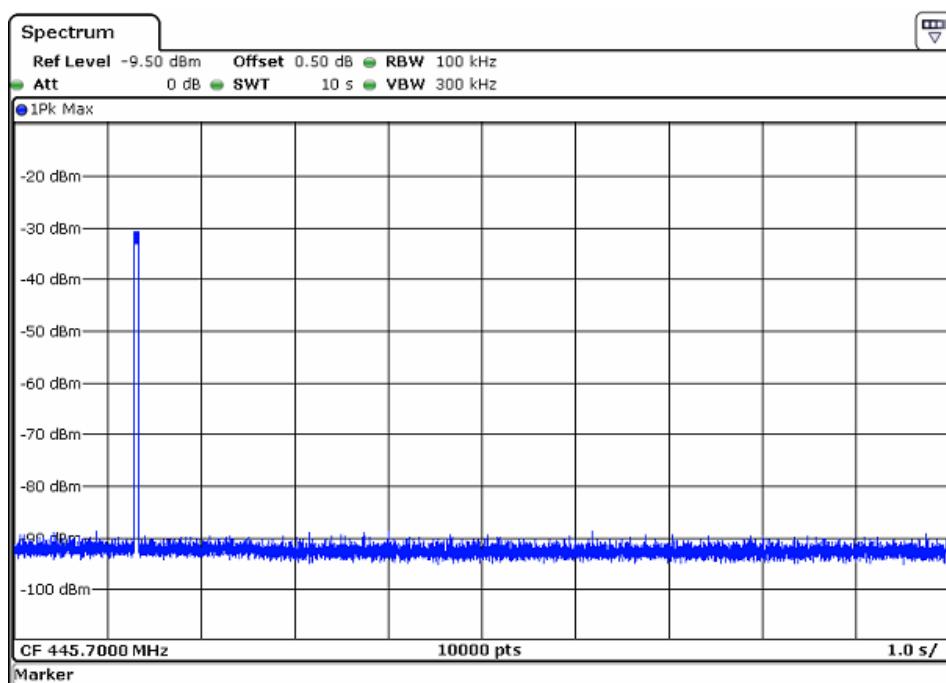


7.3.5 Test results

EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode1 CH00 & CH127& CH255		

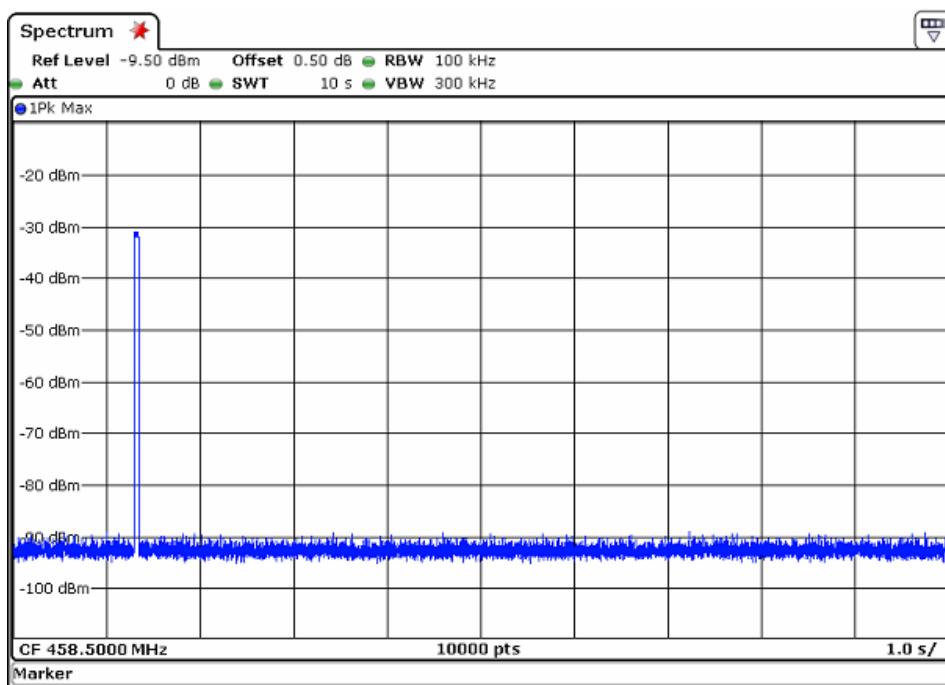
Item	Duration of each transmission (Td)
Time	0.0465047 s
Limit	5 s



**Channel 00: 433.0MHz****Channel 127: 445.7MHz**



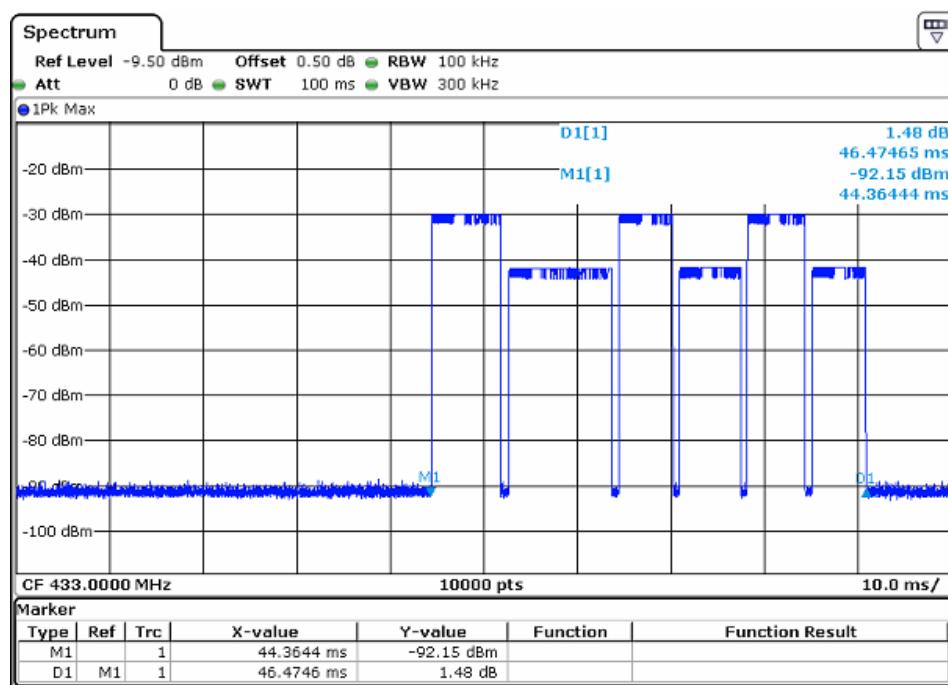
Channel 255: 458.5MHz

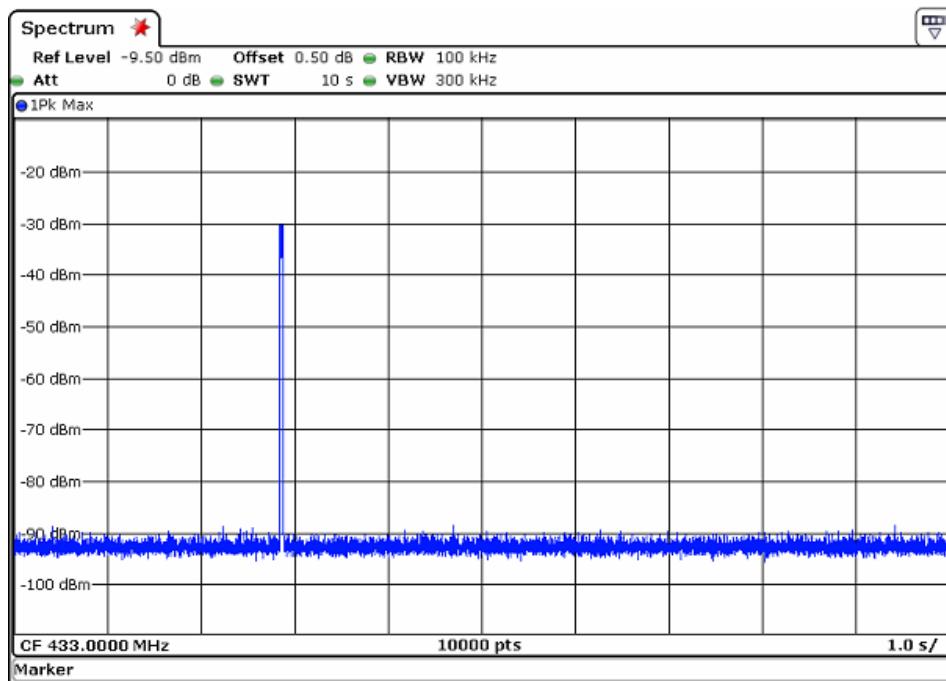
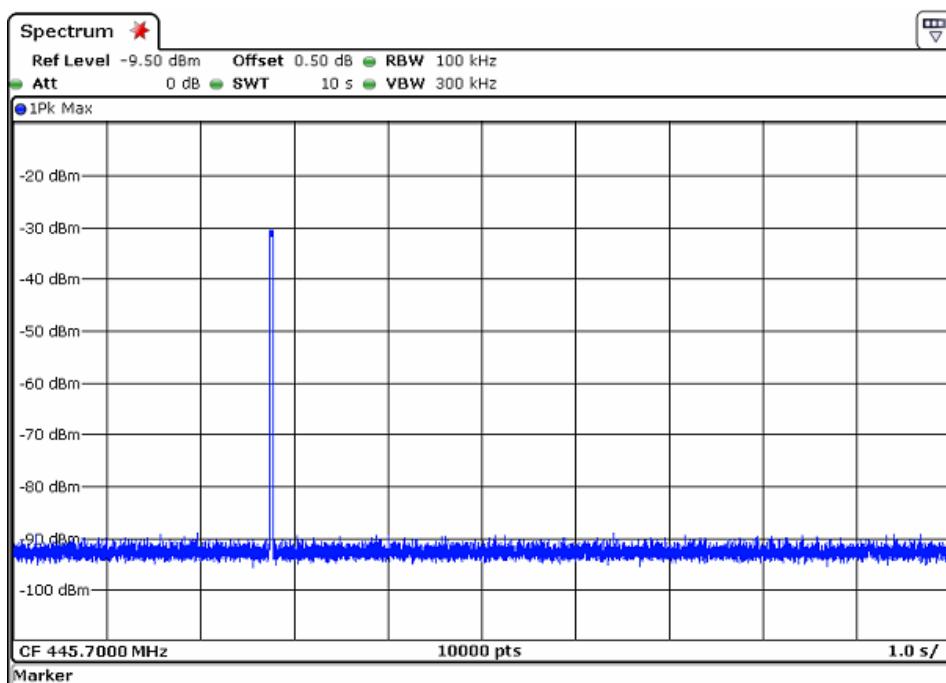




EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode 2 CH00 & CH127& CH255		

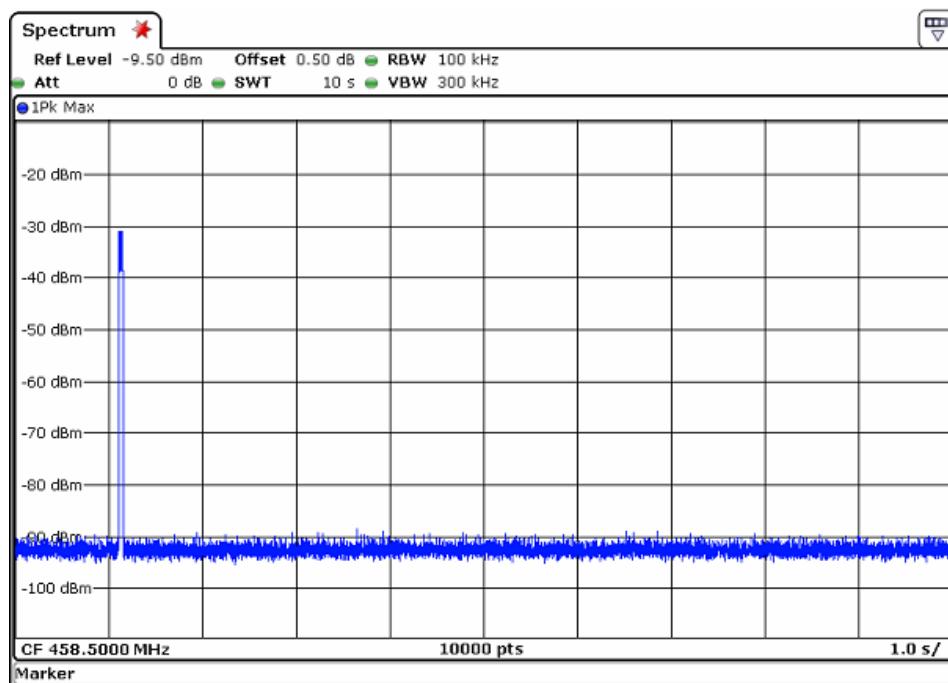
Item	Duration of each transmission (Td)
Time	0.0464746 s
Limit	5 s



**Channel 00: 433.0MHz****Channel 127: 445.7MHz**



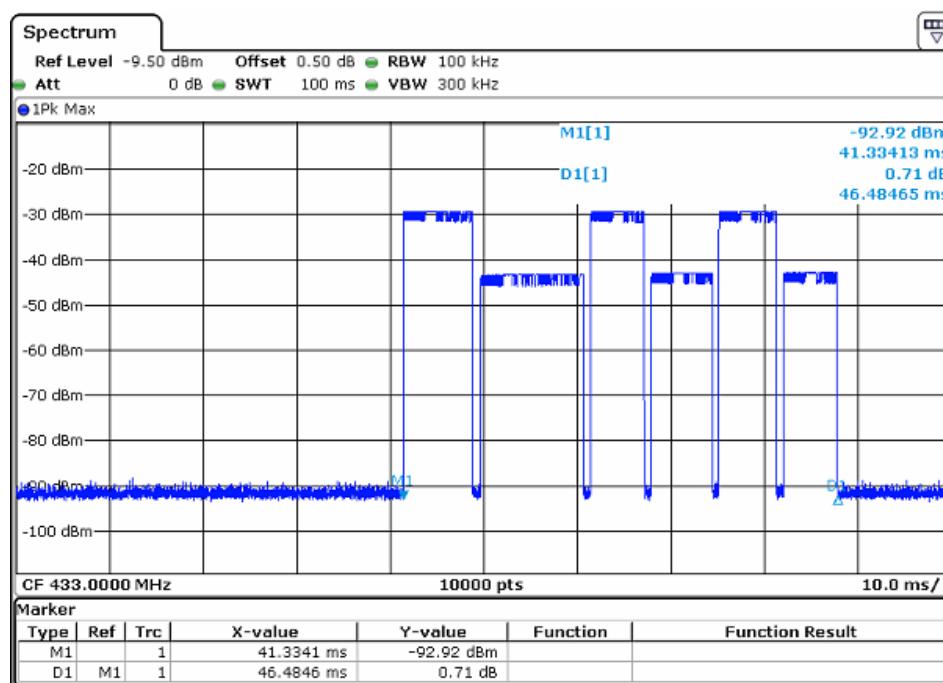
Channel 255: 458.5MHz





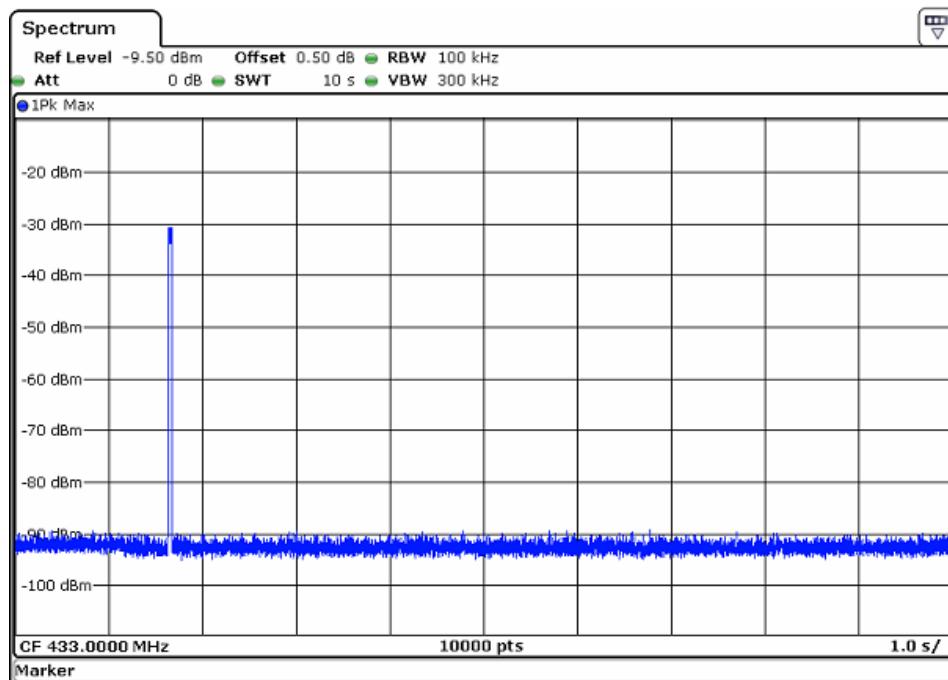
EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode 3 CH00 & CH127& CH255		

Item	Duration of each transmission (Td)
Time	0.0464846 s
Limit	5 s

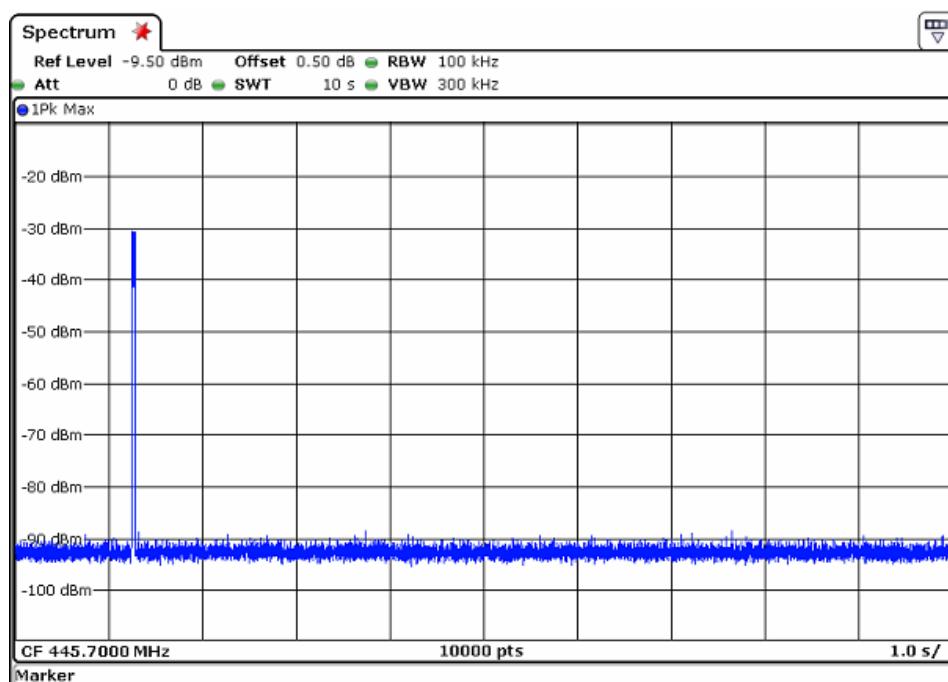




Channel 00: 433.0MHz

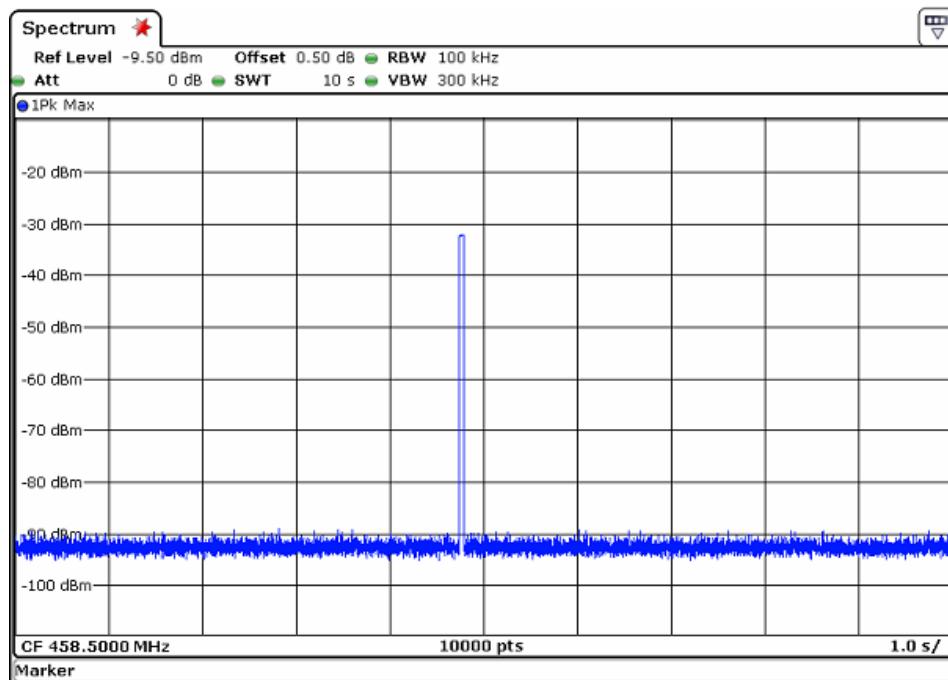


Channel 127: 445.7MHz





Channel 255: 458.5MHz





7.4 Radiated Emissions Measurement

7.4.1 Applied procedures / Limit

Test Requirement:	FCC Part15 C section 15.231(b)	
Test Method:	ANSI C63.10: Clause 6.4, 6.5 and 6.6	
Measurement Distance:	3 m (Semi-Anechoic Chamber)	
Test Status:	Test in transmitting mode.	
Requirements:	the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:	
Fundamental Frequency MHz	Field Strength of Fundamental (dB μ V/m @ 3 m)	Field Strength of Harmonics and Spurious Emissions (dB μ V/m @ 3 m)
40.66 to 40.70	67.04	47.04
70 to 130	61.93	41.93
130 to 174	61.93 to 71.48	41.93 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.93	51.48 to 61.93
Above 470	81.93	61.93
Detector:	Peak for pre-scan	
	QP for 30MHz to1000 MHz:120 kHz resolution bandwidth Peak for Above 1 GHz: 1 MHz resolution bandwidth	
** linear interpolations [Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μ V/m at 3 meters = $56.81818(F) - 6136.3636$; for the band 260-470 MHz, μ V/m at 3 meters = $41.6667(F) - 7083.3333$. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level] The fundamental frequency of the EUT is 433.0 MHz, 445.7 MHz & 458.5 MHz. The limit for average or QP field strength dB μ V/m for the fundamental emission= 80.79 dB μ V/m, 81.20 dB μ V/m & 81.60 dB μ V/m No fundamental is allowed in the restricted bands. The limit for average field strength dB μ V/m for the spurious emission=52.86 dB μ V/m. Spurious in the restricted bands must be less than 52.86 dB μ V/m or 15.209, whichever limit permits a higher field strength.]		



And according 15.35(a)

15.35(a) On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified. The specifications for the measuring instrument using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Interference (CISPR) of the International Electrotechnical Commission. As an alternative to CISPR quasi-peak measurements, the responsible party, at its option, may demonstrate compliance with the emission limits using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, as long as the same bandwidths as indicated for CISPR quasi-peak measurements are employed.

Note: For pulse modulated devices with a pulse-repetition frequency of 20 Hz or less and for which CISPR quasi-peak measurements are specified, compliance with the regulations shall be demonstrated using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, using the same measurement bandwidths that are indicated for CISPR quasi-peak measurements.

According to 15.35 (b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509-15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + 20log (Duty cycle), where the duty factor is calculated from following formula:

TX Mode 1

$$20\log (\text{Duty cycle}) = 20\log(\frac{T_{pulse}}{T_{pulse} + T_{idle}}) = 20\log(42.9443/46.5047) = -0.69\text{dB}$$

TX Mode 2

$$20\log (\text{Duty cycle}) = 20\log(\frac{T_{pulse}}{T_{pulse} + T_{idle}}) = 20\log(42.9443/46.4746) = -0.69\text{dB}$$

TX Mode 3

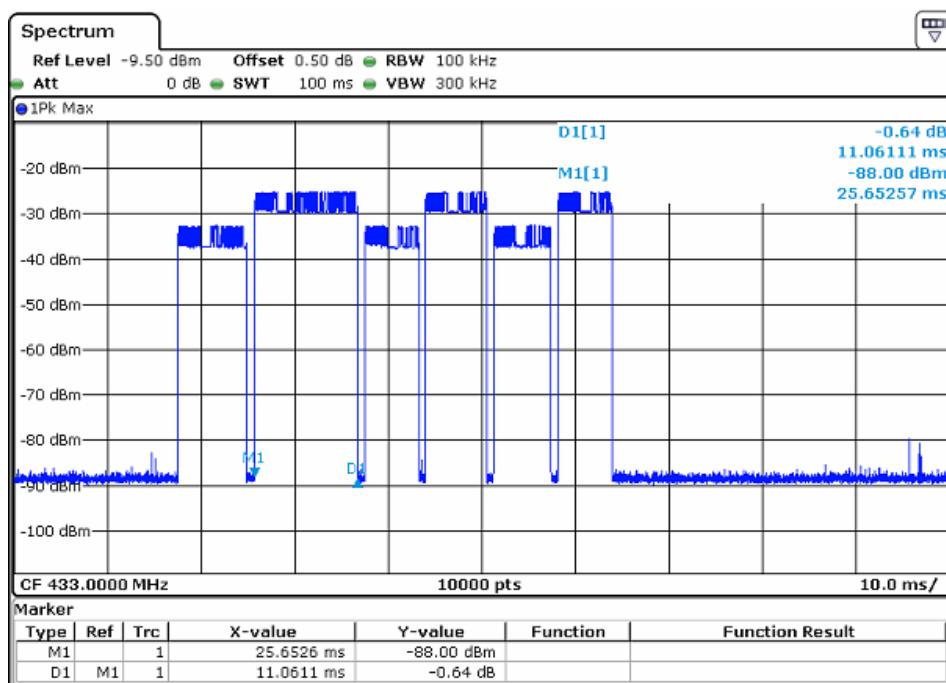
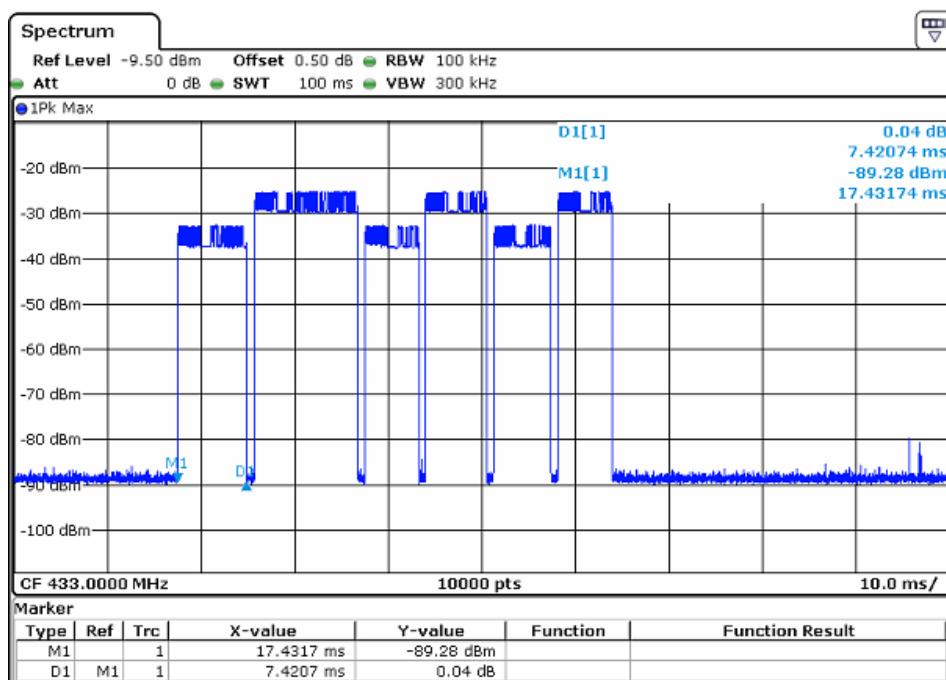
$$20\log (\text{Duty cycle}) = 20\log(\frac{T_{pulse}}{T_{pulse} + T_{idle}}) = 20\log(42.9443/46.4846) = -0.69\text{dB}$$

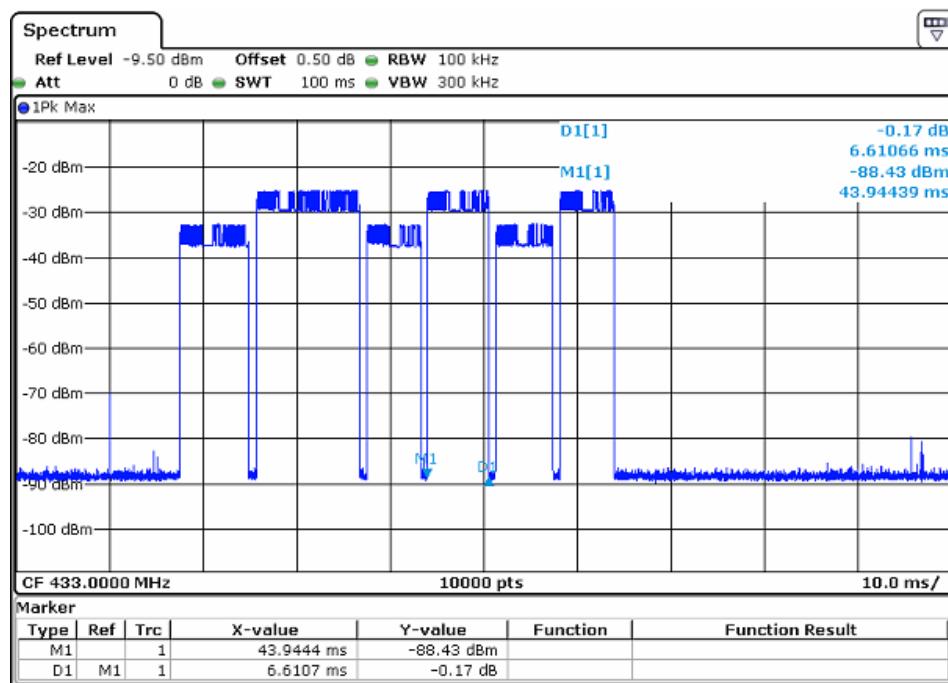
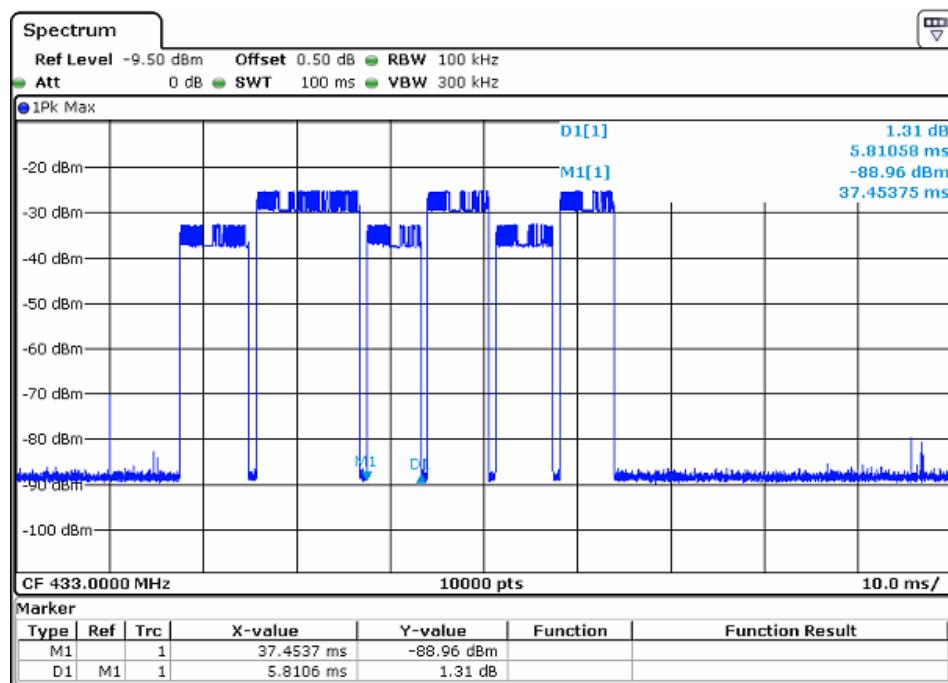
$$\text{Here } T_{pulse} = (7.4207 + 11.0611 + 5.8106 + 6.6107 + 6.2206 + 5.8206) = 42.9443 \text{ (ms)}$$

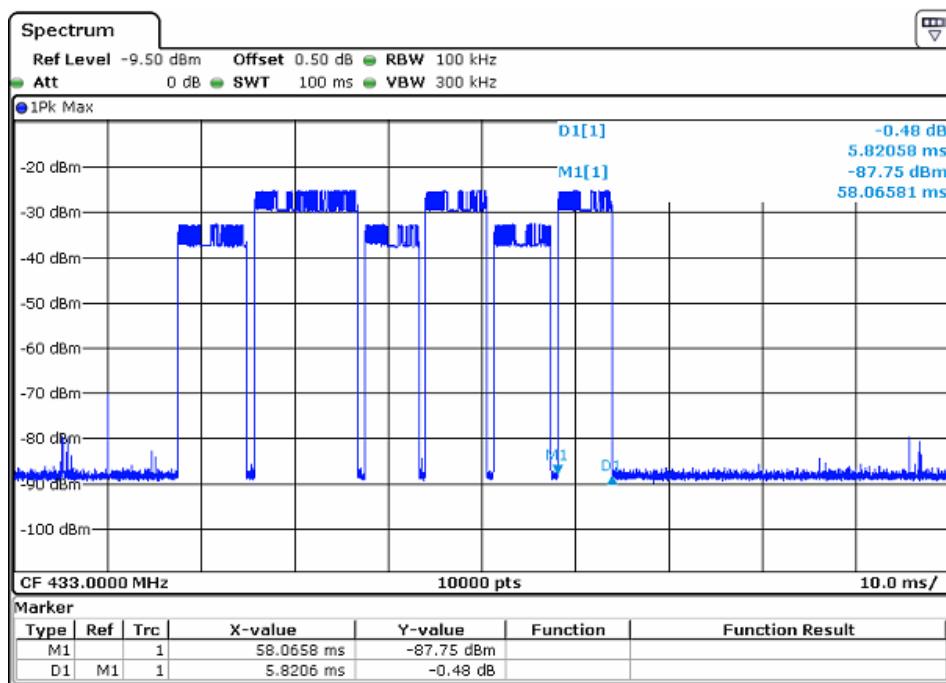
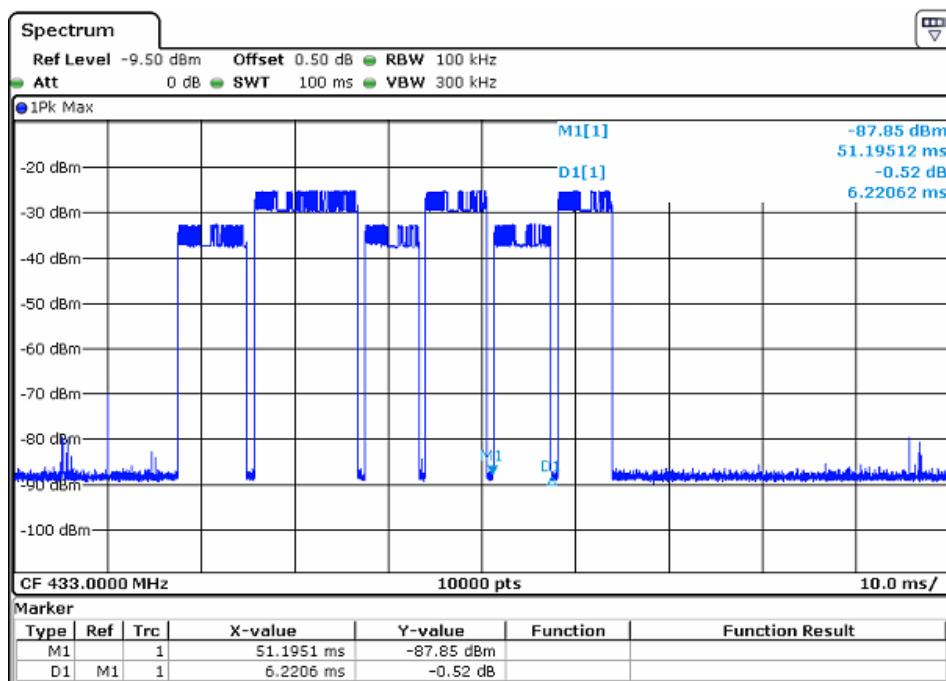
Please refer to below plots for more details.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH00	Test Voltage :	DC 3.7V from battery









7.4.2 Test procedure

Test Procedure:

1)9 kHz to 30 MHz emissions:

For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT, During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2)30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3)1 GHz to 25 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360°, the antenna height scan between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

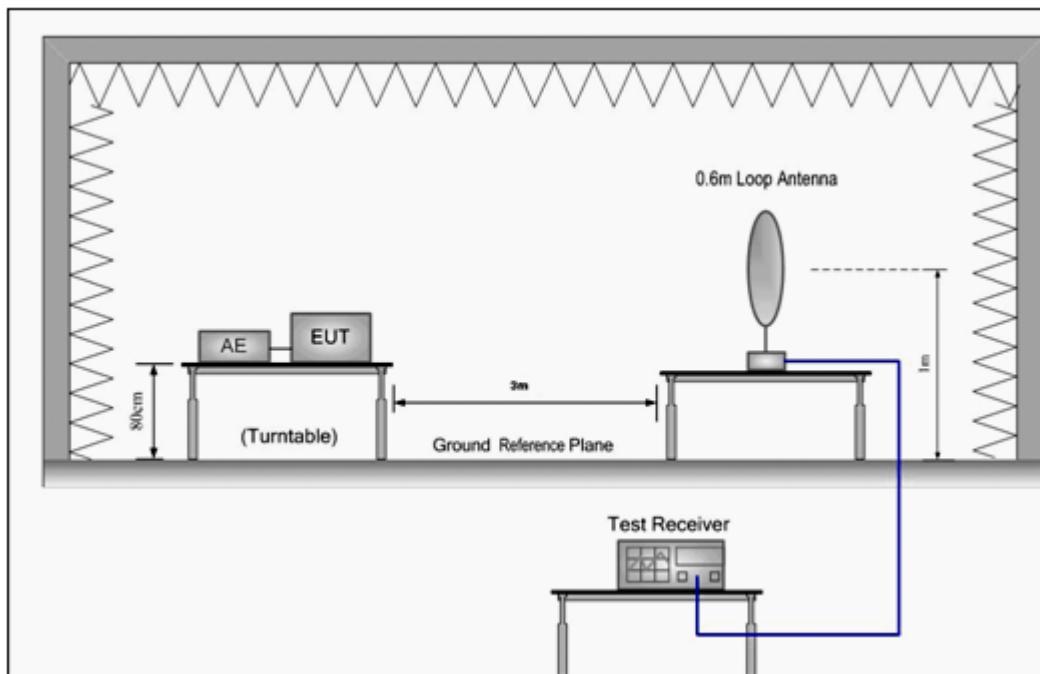
For the radiated emission test above 1GHz:

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

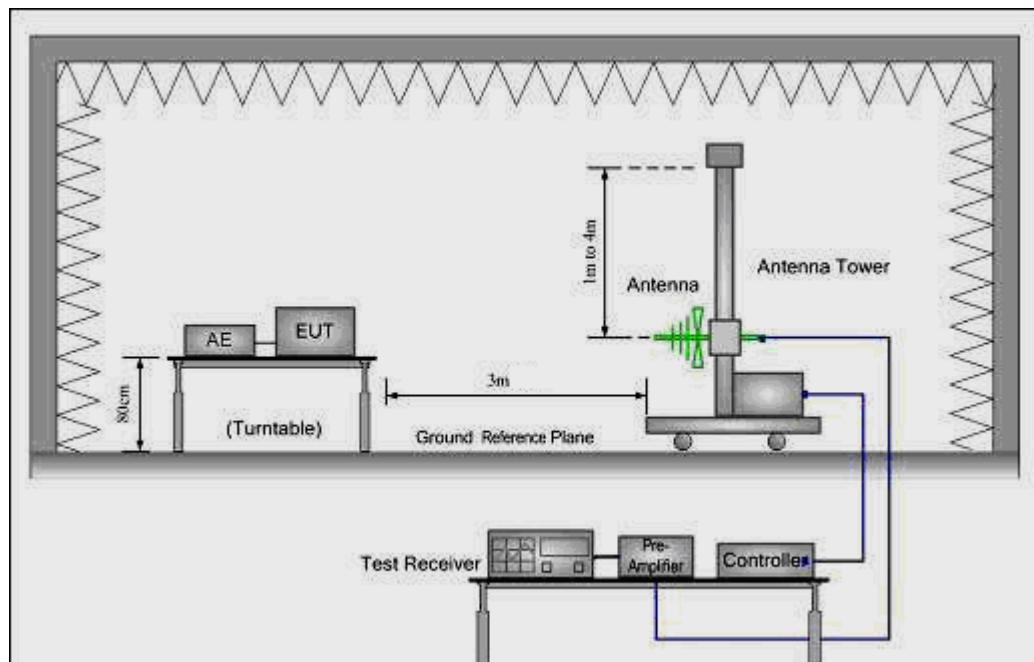
Pre-test the EUT in continuous transmitting mode with setup as stand-alone in X, Y, Z three axes, found the worst case is Y axes and report the data.

7.4.3 Test Configuration:

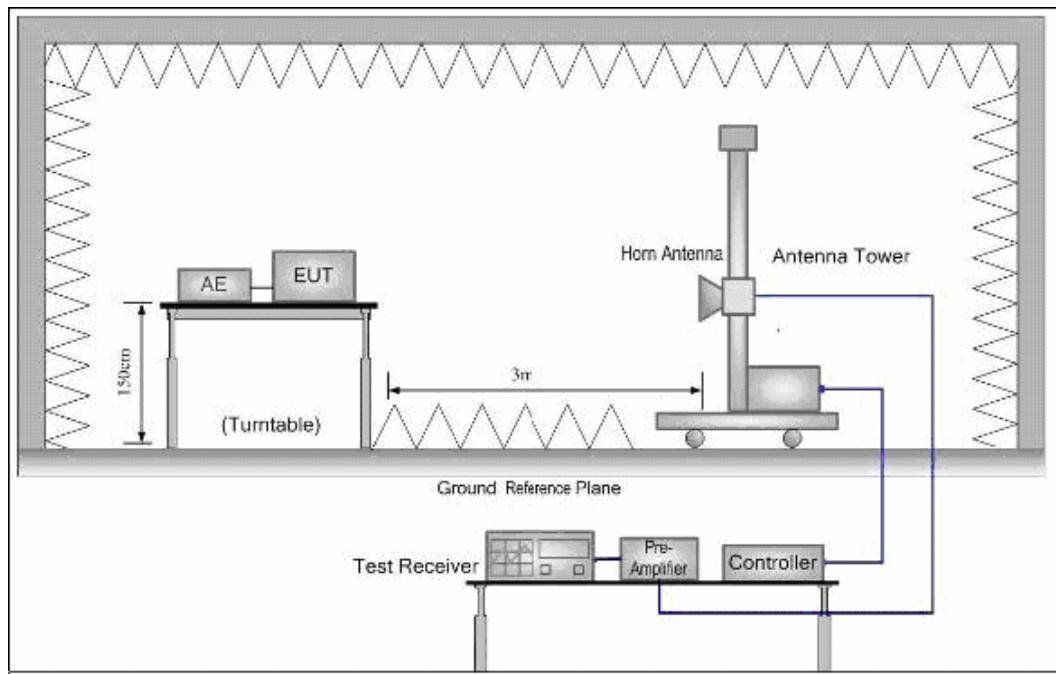
- 1) 9 kHz to 30 MHz emissions:



- 2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 25 GHz emissions:



The field strength is calculated by adding the Antenna Factor, Cable Loss & Per-amplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

1) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	90.57	-6.59	83.98	100.79	-16.81	Peak
433.00	-	-	70.23	80.79	-10.56	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	77.31	-6.59	70.72	100.79	-30.07	Peak
433.00	-	-	57.54	80.79	-23.25	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

2) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	89.13	-6.81	82.32	101.20	-18.88	Peak
445.70	-	-	69.55	81.20	-11.65	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	76.99	-6.81	70.18	101.20	-31.02	Peak
445.70	-	-	58.12	81.20	-23.08	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

3) Fundamental emission:

Antenna polarization: Horizontal:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	90.25	-6.94	83.31	101.60	-18.29	Peak
458.50	-	-	69.54	81.60	-12.06	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	78.83	-6.94	71.89	101.60	-29.71	Peak
458.50	-	-	58.14	81.60	-23.46	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

4) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	86.68	-6.59	80.09	100.79	-20.70	Peak
433.00	-	-	68.44	80.79	-12.35	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	74.54	-6.59	67.95	100.79	-32.84	Peak
433.00	-	-	57.53	80.79	-23.26	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqency Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

5) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	85.37	-6.81	78.56	101.20	-22.64	Peak
445.70	-	-	67.74	81.20	-13.46	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	73.34	-6.81	66.53	101.20	-34.67	Peak
445.70	-	-	59.34	81.20	-21.86	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

6) Fundamental emission:

Antenna polarization: Horizontal:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	86.77	-6.94	79.83	101.60	-21.77	Peak
458.50	-	-	68.88	81.60	-12.72	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	75.12	-6.94	68.18	101.60	-33.42	Peak
458.50	-	-	56.54	81.60	-25.06	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

7) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	87.63	-6.59	81.04	100.79	-19.75	Peak
433.00	-	-	69.43	80.79	-11.36	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
433.00	75.55	-6.59	68.96	100.79	-31.83	Peak
433.00	-	-	56.47	80.79	-24.32	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqency Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

8) Fundamental emission:**Antenna polarization: Horizontal:**

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	86.47	-6.81	79.66	101.20	-21.54	Peak
445.70	-	-	67.62	81.20	-13.58	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
445.70	74.72	-6.81	67.91	101.20	-33.29	Peak
445.70	-	-	55.35	81.20	-25.85	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

9) Fundamental emission:

Antenna polarization: Horizontal:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	86.68	-6.94	79.74	101.60	-21.86	Peak
458.50	-	-	67.32	81.60	-14.28	Average

Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
458.50	77.34	-6.94	70.40	101.60	-31.20	Peak
458.50	-	-	57.84	81.60	-23.76	Average

Y: rotate EUT by 90° vertically.

X: rotate EUT by 90° clockwise.

Z: EUT as Radiated Emission test setup photograph in section 8 of this report.

Remark: Radiated Emission test setup photograph in section 8 of this report is the worst case and reported.

**2) other emissions:**

The receive was scanned from the lowest frequency generated within the EUT to 5 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

An initial pre-scan was performed in the 3 m chamber using the spectrum analyzer in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Peramplifier Factor.

The following test results were performed on the EUT.

Since the peak emission level is lower than the average limit, the average emission level does not need to show.

Test the EUT in transmitting mode.



7.4.4 Test Result

9 kHz~30 MHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(a) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
39.0245	41.96	-14.52	27.44	40.00	-12.56	QUASIPEAK
298.2681	40.38	-9.84	30.54	46.00	-15.46	QUASIPEAK
515.4374	40.73	-5.00	35.73	46.00	-10.27	QUASIPEAK
543.2740	40.69	-3.99	36.70	46.00	-9.30	QUASIPEAK
827.4932	36.00	0.80	36.80	46.00	-9.20	QUASIPEAK
938.8324	34.91	3.51	38.42	46.00	-7.58	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
39.0245	40.85	-16.64	24.21	40.00	-15.79	QUASIPEAK
254.7281	38.77	-13.23	25.54	46.00	-20.46	QUASIPEAK
407.5144	40.81	-6.45	34.36	46.00	-11.64	QUASIPEAK
489.0269	44.33	-5.60	38.73	46.00	-7.27	QUASIPEAK
543.2740	43.74	-3.99	39.75	46.00	-6.25	QUASIPEAK
867.1643	39.21	1.82	41.03	46.00	-4.97	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(a) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
40.4172	32.88	-14.58	18.30	40.00	-21.70	QUASIPEAK
192.4185	36.40	-14.95	21.45	43.50	-22.05	QUASIPEAK
298.2681	36.28	-9.84	26.44	46.00	-19.56	QUASIPEAK
543.2740	43.38	-3.99	39.39	46.00	-6.61	QUASIPEAK
584.7894	39.00	-2.41	36.59	46.00	-9.41	QUASIPEAK
945.4397	34.83	3.63	38.46	46.00	-7.54	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
97.4560	40.08	-15.66	24.42	43.50	-19.08	QUASIPEAK
123.2655	36.70	-15.06	21.64	43.50	-21.86	QUASIPEAK
245.9508	39.94	-13.90	26.04	46.00	-19.96	QUASIPEAK
515.4374	46.76	-5.00	41.76	46.00	-4.24	QUASIPEAK
582.7423	44.13	-2.48	41.65	46.00	-4.35	QUASIPEAK
896.9963	39.42	2.78	42.20	46.00	-3.80	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(b) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
39.2991	37.94	-14.54	23.40	40.00	-16.60	QUASIPEAK
325.5957	33.73	-8.75	24.98	46.00	-21.02	QUASIPEAK
515.4374	39.95	-5.00	34.95	46.00	-11.05	QUASIPEAK
556.7744	40.57	-3.48	37.09	46.00	-8.91	QUASIPEAK
570.6100	41.54	-3.09	38.45	46.00	-7.55	QUASIPEAK
993.0113	32.19	4.72	36.91	54.00	-17.09	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
325.5957	34.56	-8.75	25.81	46.00	-20.19	QUASIPEAK
489.0269	48.06	-5.60	42.46	46.00	-3.54	QUASIPEAK
530.1014	44.63	-4.58	40.05	46.00	-5.95	QUASIPEAK
597.2232	41.03	-1.13	39.90	46.00	-6.10	QUASIPEAK
920.9965	36.95	3.08	40.03	46.00	-5.97	QUASIPEAK
945.4397	37.64	3.63	41.27	46.00	-4.73	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(a) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	65.14	-9.52	55.62	80.79	-25.17	PEAK
2607.652	65.26	-4.15	61.11	80.79	-19.68	PEAK
3478.458	58.81	-0.60	58.21	80.79	-22.58	PEAK
3915.809	53.79	3.22	57.01	80.79	-23.78	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713	-0.69	55.62	54.93	60.79	-5.86	AVG
2607.652		61.11	60.42	60.79	-0.37	AVG
3478.458		58.21	57.52	60.79	-3.27	AVG
3915.809		57.01	56.32	60.79	-4.47	AVG



(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	68.01	-9.52	58.49	80.79	-22.30	PEAK
2607.652	65.39	-4.15	61.24	80.79	-19.55	PEAK
3478.258	58.73	-0.60	58.13	80.79	-22.66	PEAK
3915.809	54.01	3.22	57.23	80.79	-23.56	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713	-0.69	58.49	57.8	60.79	-2.99	AVG
2607.652		61.24	60.55	60.79	-0.24	AVG
3478.458		58.13	57.44	60.79	-3.35	AVG
3915.809		57.23	56.54	60.79	-4.25	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(c) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	67.26	-9.35	57.91	81.20	-23.29	PEAK
2695.042	64.28	-3.62	60.66	81.20	-20.54	PEAK
3594.853	58.82	0.44	59.26	81.20	-21.94	PEAK
4043.021	52.23	3.90	56.13	81.20	-25.07	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	57.91	57.22	61.20	-3.98	AVG
2695.042		60.66	59.97	61.20	-1.23	AVG
3594.853		59.26	58.57	61.20	-2.63	AVG
4043.021		56.13	55.44	61.20	-5.76	AVG



(d) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	60.77	-9.35	51.42	81.20	-29.78	PEAK
2695.042	64.13	-3.62	60.51	81.20	-20.69	PEAK
3594.853	59.09	0.44	59.53	81.20	-21.67	PEAK
4043.021	53.13	3.90	57.03	81.20	-24.17	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	51.42	50.73	61.20	-10.47	AVG
2695.042		60.51	59.82	61.20	-1.38	AVG
3594.853		59.53	58.84	61.20	-2.36	AVG
4043.021		57.03	56.34	61.20	-4.86	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 1 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(a) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	64.44	-9.42	55.02	81.60	-26.58	PEAK
2761.546	63.92	-3.12	60.80	81.60	-20.80	PEAK
3682.214	57.23	1.26	58.49	81.60	-23.11	PEAK
4146.674	51.45	4.06	55.51	81.60	-26.09	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1839.044		55.02	54.33	61.60	-7.27	AVG
2761.546		60.80	60.11	61.60	-1.49	AVG
3682.214		58.49	57.80	61.60	-3.80	AVG
4146.674		55.51	54.82	61.60	-6.78	AVG



(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	68.38	-9.42	58.96	81.60	-22.64	PEAK
2761.546	64.11	-3.12	60.99	81.60	-20.61	PEAK
3682.241	57.18	1.26	58.44	81.60	-23.16	PEAK
4146.674	52.44	4.06	56.50	81.60	-25.10	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	58.96	58.27	61.60	-3.33	AVG
2695.042		60.99	60.30	61.60	-1.30	AVG
3594.853		58.44	57.75	61.60	-3.85	AVG
4043.021		56.50	55.81	61.60	-5.79	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(b) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
49.0144	39.85	-18.52	21.33	40.00	-18.67	QUASIPEAK
131.7574	39.73	-14.85	24.88	43.50	-18.62	QUASIPEAK
290.0172	35.36	-10.18	25.18	46.00	-20.82	QUASIPEAK
407.5144	35.26	-6.45	28.81	46.00	-17.19	QUASIPEAK
801.7862	32.09	3.30	35.39	46.00	-10.61	QUASIPEAK
867.0247	38.59	1.82	40.41	46.00	-5.59	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
67.4381	38.54	-18.18	20.36	40.00	-19.64	QUASIPEAK
298.2681	45.42	-9.84	35.58	46.00	-10.42	QUASIPEAK
393.4723	38.85	-7.18	31.67	46.00	-14.33	QUASIPEAK
489.0269	41.98	-5.60	36.38	46.00	-9.62	QUASIPEAK
570.6100	34.92	-3.09	31.83	46.00	-14.17	QUASIPEAK
867.0247	37.89	1.82	39.71	46.00	-6.29	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(c) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
67.4381	38.54	-18.18	20.36	40.00	-19.64	QUASIPEAK
191.7450	36.19	-14.75	21.44	43.50	-22.06	QUASIPEAK
298.2681	45.42	-9.84	35.58	46.00	-10.42	QUASIPEAK
393.4723	39.36	-7.18	32.18	46.00	-13.82	QUASIPEAK
489.0269	41.98	-5.60	36.38	46.00	-9.62	QUASIPEAK
896.9963	39.28	2.78	42.06	46.00	-3.94	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
67.9128	36.58	-18.33	18.25	40.00	-21.75	QUASIPEAK
298.2681	40.12	-9.84	30.28	46.00	-15.72	QUASIPEAK
407.5144	39.10	-6.69	32.41	46.00	-13.59	QUASIPEAK
827.4933	36.17	0.80	36.97	46.00	-9.03	QUASIPEAK
881.4067	37.83	2.48	40.31	46.00	-5.69	QUASIPEAK
896.9963	36.39	2.78	39.17	46.00	-6.83	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(d) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
66.2661	38.48	-17.80	20.68	40.00	-19.32	QUASIPEAK
286.9823	39.01	-10.60	28.41	46.00	-17.59	QUASIPEAK
393.4723	39.24	-7.18	32.06	46.00	-13.94	QUASIPEAK
543.2741	37.26	-3.99	33.27	46.00	-12.73	QUASIPEAK
827.4933	36.46	0.80	37.26	46.00	-8.74	QUASIPEAK
919.8325	36.27	3.08	39.35	46.00	-6.65	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
104.9033	33.51	-13.57	19.94	43.50	-23.56	QUASIPEAK
121.5485	33.79	-14.98	18.81	43.50	-24.69	QUASIPEAK
287.9904	33.99	-10.45	23.54	46.00	-22.46	QUASIPEAK
601.4265	30.74	-0.89	29.85	46.00	-16.15	QUASIPEAK
801.7862	30.09	3.30	33.39	46.00	-12.61	QUASIPEAK
919.8325	35.23	3.08	38.31	46.00	-7.69	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(e) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	66.45	-9.52	55.62	80.79	-25.17	PEAK
2607.652	59.34	-4.15	61.11	80.79	-19.68	PEAK
3478.458	55.86	-0.6	58.21	80.79	-22.58	PEAK
3915.809	48.53	3.22	57.01	80.79	-23.78	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713	-0.69	55.62	54.93	60.79	-5.86	AVG
2607.652		61.11	60.42	60.79	-0.37	AVG
3478.458		58.21	57.52	60.79	-3.27	AVG
3915.809		57.01	56.32	60.79	-4.47	AVG



(f) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	62.01	-9.52	52.49	80.79	-28.3	PEAK
2607.652	55.38	-4.15	51.23	80.79	-29.56	PEAK
3478.258	57.29	-0.6	56.69	80.79	-24.1	PEAK
3915.809	47.93	3.22	51.15	80.79	-29.64	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713	-0.69	52.49	51.80	60.79	-8.99	AVG
2607.652		51.23	50.54	60.79	-10.25	AVG
3478.458		56.69	56.00	60.79	-4.79	AVG
3915.809		51.15	50.46	60.79	-10.33	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(g) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	66.87	-9.35	57.52	81.20	-23.68	PEAK
2695.042	59.21	-3.62	55.59	81.20	-25.61	PEAK
3594.853	57.42	0.44	57.86	81.20	-23.34	PEAK
4043.021	47.35	3.9	51.25	81.20	-29.95	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	57.52	56.83	61.20	-4.37	AVG
2695.042		55.59	54.90	61.20	-6.30	AVG
3594.853		57.86	57.17	61.20	-4.03	AVG
4043.021		51.25	50.56	61.20	-10.64	AVG



(h) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	61.74	-9.35	52.39	81.20	-28.81	PEAK
2695.042	59.88	-3.62	56.26	81.20	-24.94	PEAK
3594.853	57.35	0.44	57.79	81.20	-23.41	PEAK
4043.021	49.63	3.9	53.53	81.20	-27.67	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	52.39	51.70	61.20	-9.50	AVG
2695.042		56.26	55.57	61.20	-5.63	AVG
3594.853		57.79	57.10	61.20	-4.10	AVG
4043.021		53.53	52.84	61.20	-8.36	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 2 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(c) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	67.34	-9.42	57.92	81.60	-23.68	PEAK
2761.546	60.27	-3.12	57.15	81.60	-24.45	PEAK
3682.214	56.34	1.26	57.60	81.60	-24	PEAK
4146.674	50.43	4.06	54.49	81.60	-27.11	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1839.044		57.92	57.23	61.60	-4.37	AVG
2761.546		57.15	56.46	61.60	-5.14	AVG
3682.214		57.60	56.91	61.60	-4.69	AVG
4146.674		54.49	53.80	61.60	-7.80	AVG



(d) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	61.74	-9.42	52.32	81.60	-29.28	PEAK
2761.546	59.41	-3.12	56.29	81.60	-25.31	PEAK
3682.241	56.53	1.26	57.79	81.60	-23.81	PEAK
4146.674	49.47	4.06	53.53	81.60	-28.07	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	52.32	51.63	61.60	-9.97	AVG
2695.042		56.29	55.60	61.60	-6.00	AVG
3594.853		57.79	57.10	61.60	-4.50	AVG
4043.021		53.53	52.84	61.60	-8.76	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(c) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
119.0180	33.71	-14.94	18.77	43.50	-24.73	QUASIPEAK
298.2681	45.55	-9.84	35.71	46.00	-10.29	QUASIPEAK
393.4723	40.32	-7.18	33.14	46.00	-12.86	QUASIPEAK
489.0269	41.20	-5.60	35.60	46.00	-10.40	QUASIPEAK
827.4932	36.33	0.80	37.13	46.00	-8.87	QUASIPEAK
938.8324	36.27	3.51	39.78	46.00	-6.22	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
56.3947	38.76	-19.94	18.82	40.00	-21.18	QUASIPEAK
66.4989	41.96	-19.14	22.82	40.00	-17.18	QUASIPEAK
298.2681	35.88	-9.84	26.04	46.00	-19.96	QUASIPEAK
407.5144	34.03	-6.45	27.58	46.00	-18.42	QUASIPEAK
796.1829	32.54	3.01	35.55	46.00	-10.45	QUASIPEAK
945.4398	34.97	3.63	38.60	46.00	-7.40	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(e) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
38.8878	39.56	-14.51	25.05	40.00	-14.95	QUASIPEAK
216.0240	34.50	-16.38	18.12	46.00	-27.88	QUASIPEAK
286.9823	39.49	-10.60	28.89	46.00	-17.11	QUASIPEAK
407.5144	45.08	-6.69	38.39	46.00	-7.61	QUASIPEAK
515.4374	39.83	-5.00	34.83	46.00	-11.17	QUASIPEAK
896.9954	37.22	2.78	40.00	46.00	-6.00	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
38.8878	38.62	-14.51	24.11	40.00	-15.89	QUASIPEAK
182.5592	30.96	-11.36	19.60	43.50	-23.90	QUASIPEAK
393.4723	34.19	-7.18	27.01	46.00	-18.99	QUASIPEAK
460.7271	37.13	-6.88	30.25	46.00	-15.75	QUASIPEAK
827.4918	35.42	0.80	36.22	46.00	-9.78	QUASIPEAK
896.9963	36.39	2.78	39.17	46.00	-6.83	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	30MHz to 1GHz
RBW/VBW	100KHz / 300KHz for spectrum, RBW=120KHz for receiver.		

(f) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
38.8878	39.77	-14.51	25.26	40.00	-14.74	QUASIPEAK
122.4038	35.23	-15.02	20.21	43.50	-23.29	QUASIPEAK
298.2681	45.62	-9.84	35.78	46.00	-10.22	QUASIPEAK
434.0649	38.06	-6.61	31.45	46.00	-14.55	QUASIPEAK
515.4374	37.81	-5.00	32.81	46.00	-13.19	QUASIPEAK
919.8324	37.25	3.08	40.33	46.00	-5.67	QUASIPEAK

(b) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
38.6160	42.06	-16.66	25.40	40.00	-14.60	QUASIPEAK
104.9033	33.51	-13.57	19.94	43.50	-23.56	QUASIPEAK
244.2321	33.22	-14.00	19.22	46.00	-26.78	QUASIPEAK
407.5144	31.10	-6.45	24.65	46.00	-21.35	QUASIPEAK
714.1734	31.48	-0.45	31.03	46.00	-14.97	QUASIPEAK
881.4067	37.90	2.48	40.38	46.00	-5.62	QUASIPEAK



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH00	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(i) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	67.24	-9.52	57.72	80.79	-23.07	PEAK
2607.652	61.11	-4.15	56.96	80.79	-23.83	PEAK
3478.458	56.45	-0.6	55.85	80.79	-24.94	PEAK
3915.809	49.22	3.22	52.44	80.79	-28.35	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713		57.72	57.03	60.79	-3.76	AVG
2607.652		56.96	56.27	60.79	-4.52	AVG
3478.458		55.85	55.16	60.79	-5.63	AVG
3915.809		52.44	51.75	60.79	-9.04	AVG



(j) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1737.713	63.53	-9.52	54.01	80.79	-26.78	PEAK
2607.652	56.92	-4.15	52.77	80.79	-28.02	PEAK
3478.258	56.41	-0.6	55.81	80.79	-24.98	PEAK
3915.809	47.38	3.22	50.6	80.79	-30.19	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1737.713	-0.69	54.01	53.32	60.79	-7.47	AVG
2607.652		52.77	52.08	60.79	-8.71	AVG
3478.458		55.81	55.12	60.79	-5.67	AVG
3915.809		50.60	49.91	60.79	-10.88	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH127	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(k) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	65.77	-9.35	56.42	81.20	-24.78	PEAK
2695.042	60.41	-3.62	56.79	81.20	-24.41	PEAK
3594.853	56.42	0.44	56.86	81.20	-24.34	PEAK
4043.021	48.45	3.9	52.35	81.20	-28.85	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	56.42	55.73	61.20	-5.47	AVG
2695.042		56.79	56.10	61.20	-5.10	AVG
3594.853		56.86	56.17	61.20	-5.03	AVG
4043.021		52.35	51.66	61.20	-9.54	AVG



(I) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1796.491	60.72	-9.35	51.37	81.20	-29.83	PEAK
2695.042	59.11	-3.62	55.49	81.20	-25.71	PEAK
3594.853	56.37	0.44	56.81	81.20	-24.39	PEAK
4043.021	49.12	3.9	53.02	81.20	-28.18	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	51.37	50.68	61.20	-10.52	AVG
2695.042		55.49	54.80	61.20	-6.40	AVG
3594.853		56.81	56.12	61.20	-5.08	AVG
4043.021		53.02	52.33	61.20	-8.87	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss



EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Test Data	2017-02-18
Pressure:	1010 hPa	Relative Humidity:	60%
Test Mode :	TX mode 3 CH255	Test Voltage :	DC 3.7V from battery
Measurement Distance	3 m	Frenqucy Range	1GHz to 5GHz
RBW/VBW	1MHz/1MHz for Peak.		

(e) Antenna polarization: Horizontal

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	66.63	-9.42	57.21	81.60	-24.39	PEAK
2761.546	60.42	-3.12	57.30	81.60	-24.3	PEAK
3682.214	57.62	1.26	58.88	81.60	-22.72	PEAK
4146.674	50.73	4.06	54.79	81.60	-26.81	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1839.044		57.21	56.52	61.60	-5.08	AVG
2761.546		57.30	56.61	61.60	-4.99	AVG
3682.214		58.88	58.19	61.60	-3.41	AVG
4146.674		54.79	54.10	61.60	-7.50	AVG



(f) Antenna polarization: Vertical

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1839.044	61.44	-9.42	52.02	81.60	-29.58	PEAK
2761.546	59.39	-3.12	56.27	81.60	-25.33	PEAK
3682.241	56.92	1.26	58.18	81.60	-23.42	PEAK
4146.674	50.27	4.06	54.33	81.60	-27.27	PEAK

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dB μ V)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna polarization
1796.491	-0.69	52.02	51.33	61.60	-10.27	AVG
2695.042		56.27	55.58	61.60	-6.02	AVG
3594.853		58.18	57.49	61.60	-4.11	AVG
4043.021		54.33	53.64	61.60	-7.96	AVG

Note: Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

7.5 BANDWIDTH TEST

7.5.1 Applied procedures / Limit

15.231(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

$$\text{Bandwidth (20dB) Limit} = 0.25\% * f(\text{MHz})$$

7.5.2 Test procedure

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 30KHz, VBW \geq RBW, Sweep time = Auto.

7.5.3 Deviation from standard

No deviation.

7.5.4 Test setup



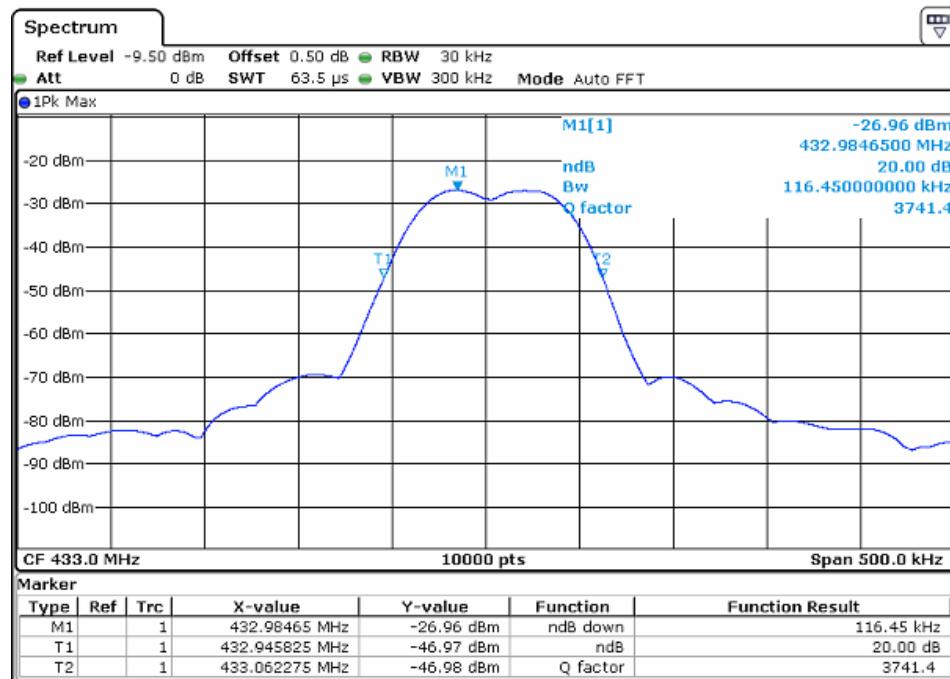


7.5.5 Test results

EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode 1 CH00 & CH127 & CH255		

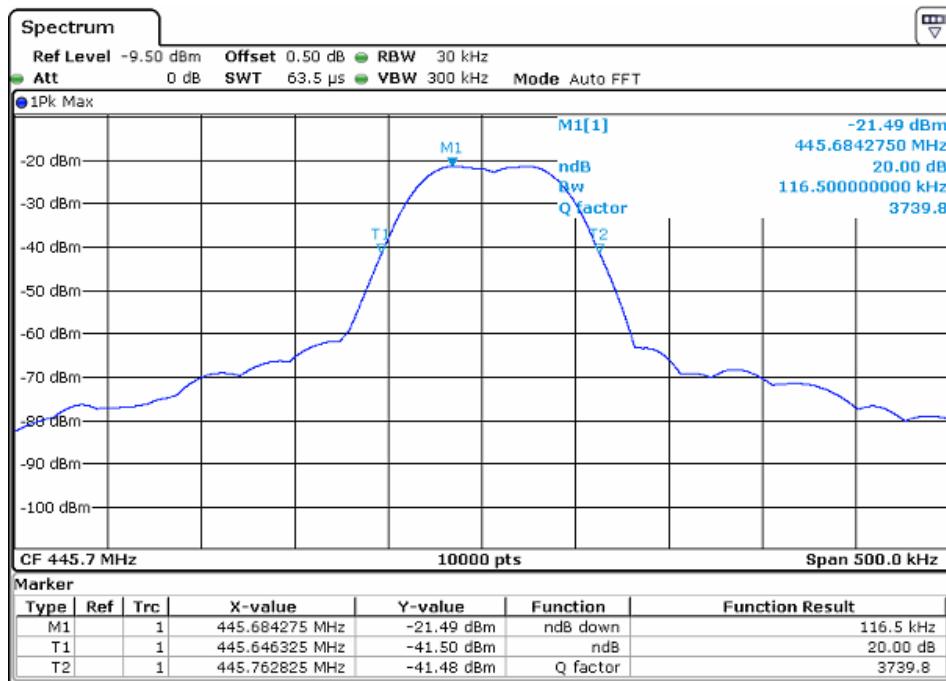
Test Mode	Test Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	Limit (kHz)	Result
TX	CH00	433.00	116.45	1082.50	Pass
TX	CH127	445.70	116.50	1114.25	Pass
TX	CH255	458.50	116.35	1146.25	Pass

Channel 00: 433.0MHz

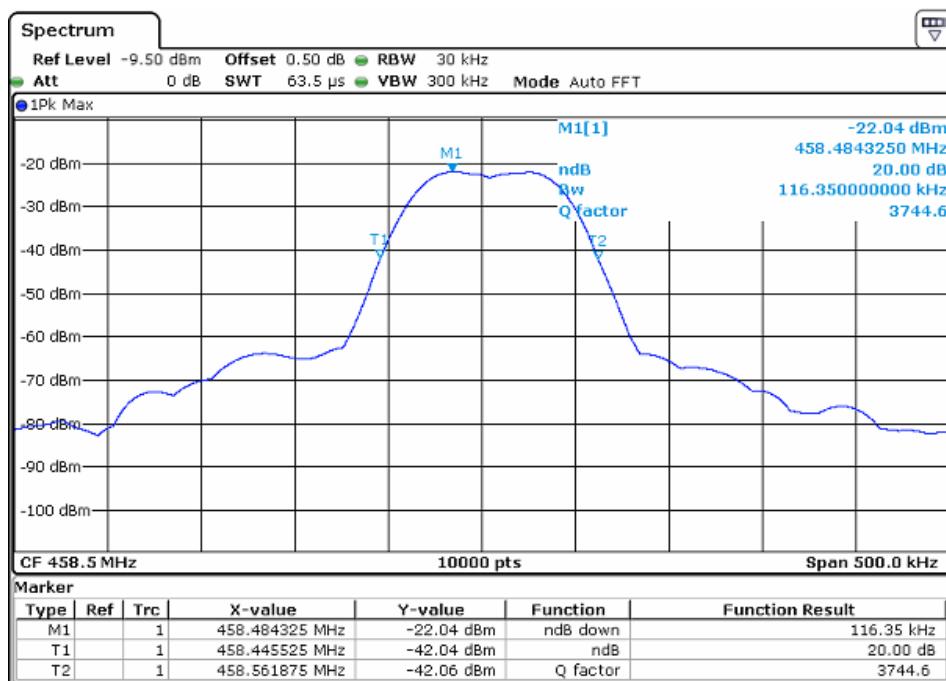




Channel 127: 445.70MHz



Channel 255: 458.50MHz

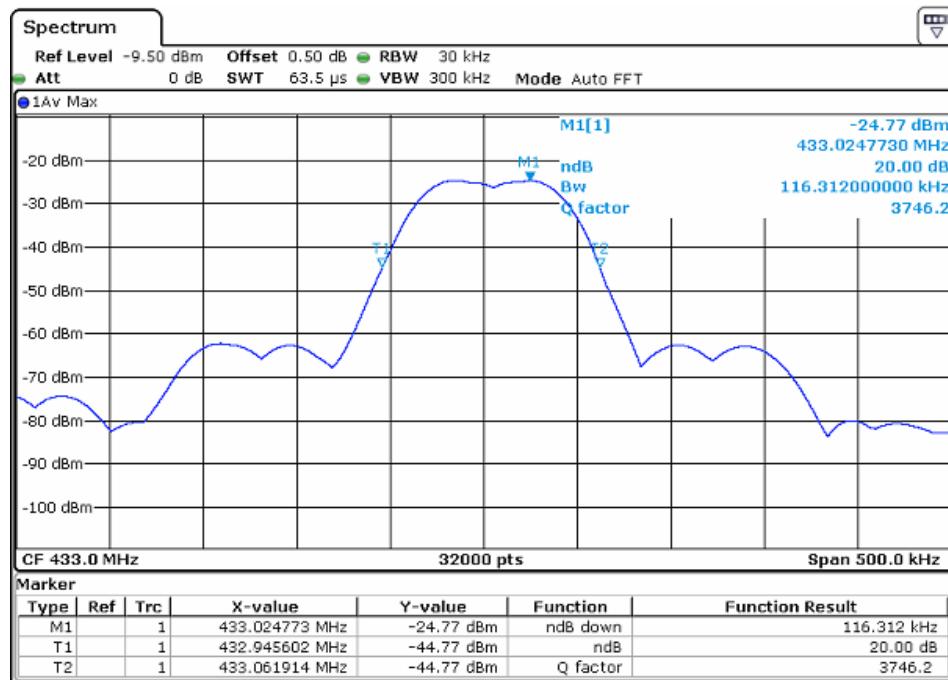




EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode 2 CH00 & CH127 & CH255		

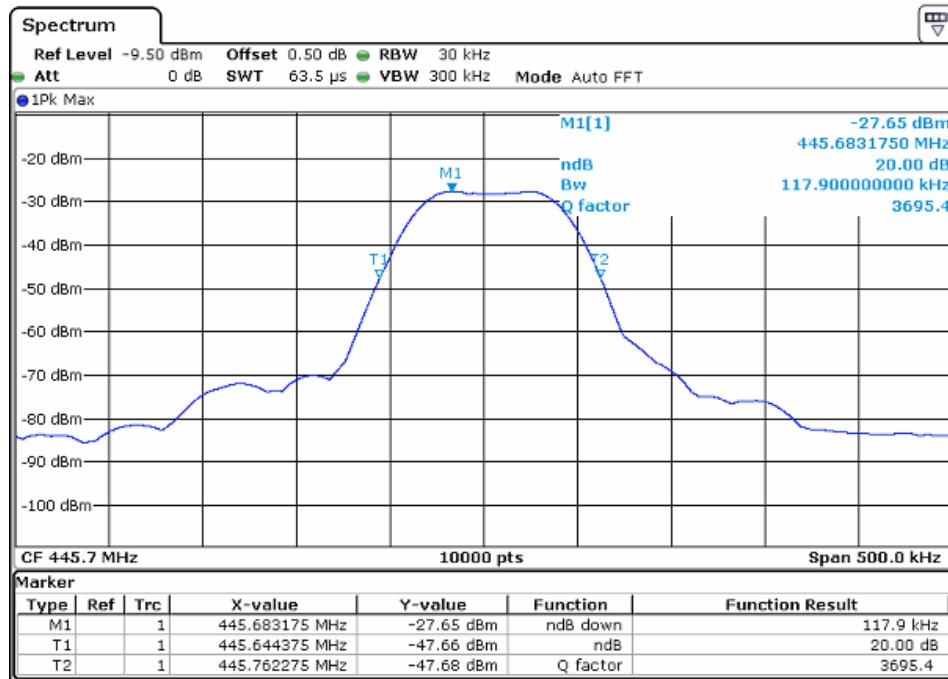
Test Mode	Test Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	Limit (kHz)	Result
TX	CH00	433.00	116.31	1082.50	Pass
TX	CH127	445.70	117.90	1114.25	Pass
TX	CH255	458.50	116.45	1146.25	Pass

Channel 00: 433.0MHz

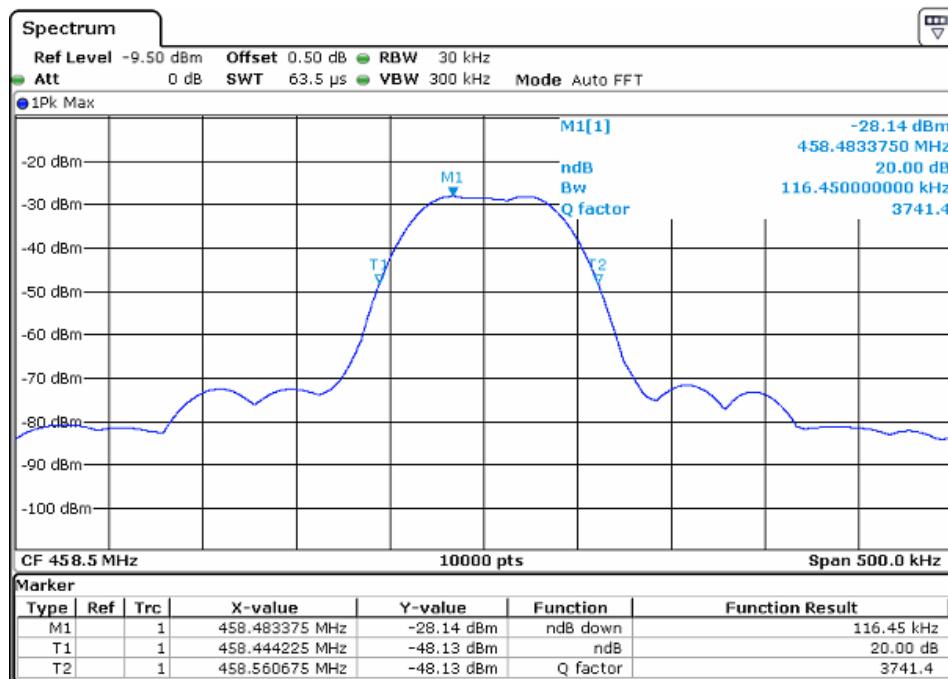




Channel 127: 445.70MHz



Channel 255: 458.50MHz

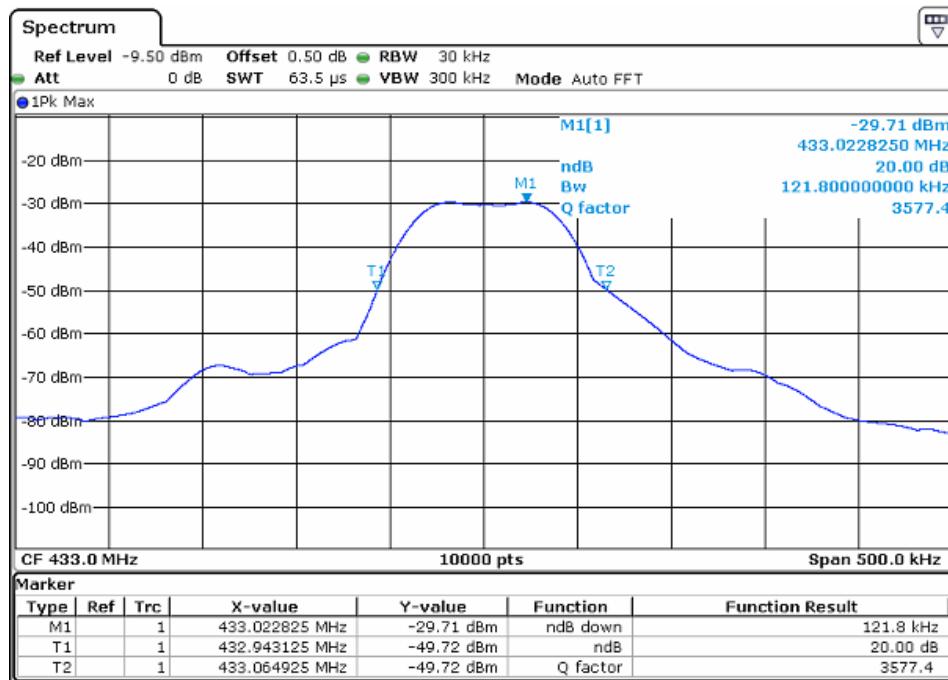




EUT:	Barcode Scanner	Model Name :	XL-9530
Temperature:	23 °C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Power :	DC 3.7V from battery
Test Mode :	TX mode 3 CH00 & CH127 & CH255		

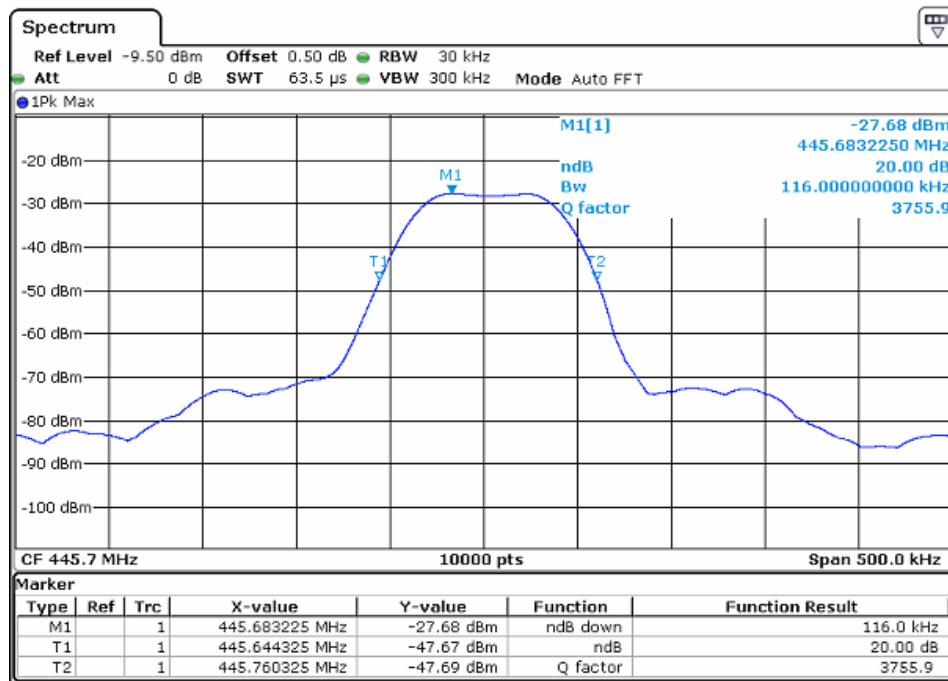
Test Mode	Test Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	Limit (kHz)	Result
TX	CH00	433.00	121.80	1082.50	Pass
TX	CH127	445.70	116.00	1114.25	Pass
TX	CH255	458.50	116.58	1146.25	Pass

Channel 00: 433.0MHz

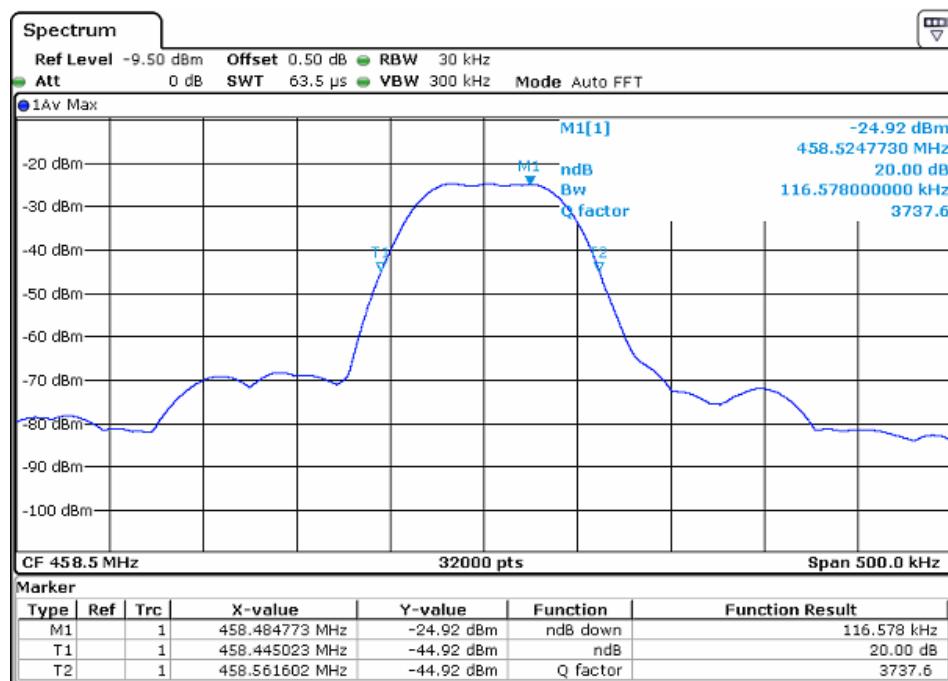




Channel 127: 445.70MHz



Channel 255: 458.50MHz



8 Photographs

8.1 Radiated Emission Test Setup

Below 1G



Above 1G



8.2 Conducted Emission Test Setup



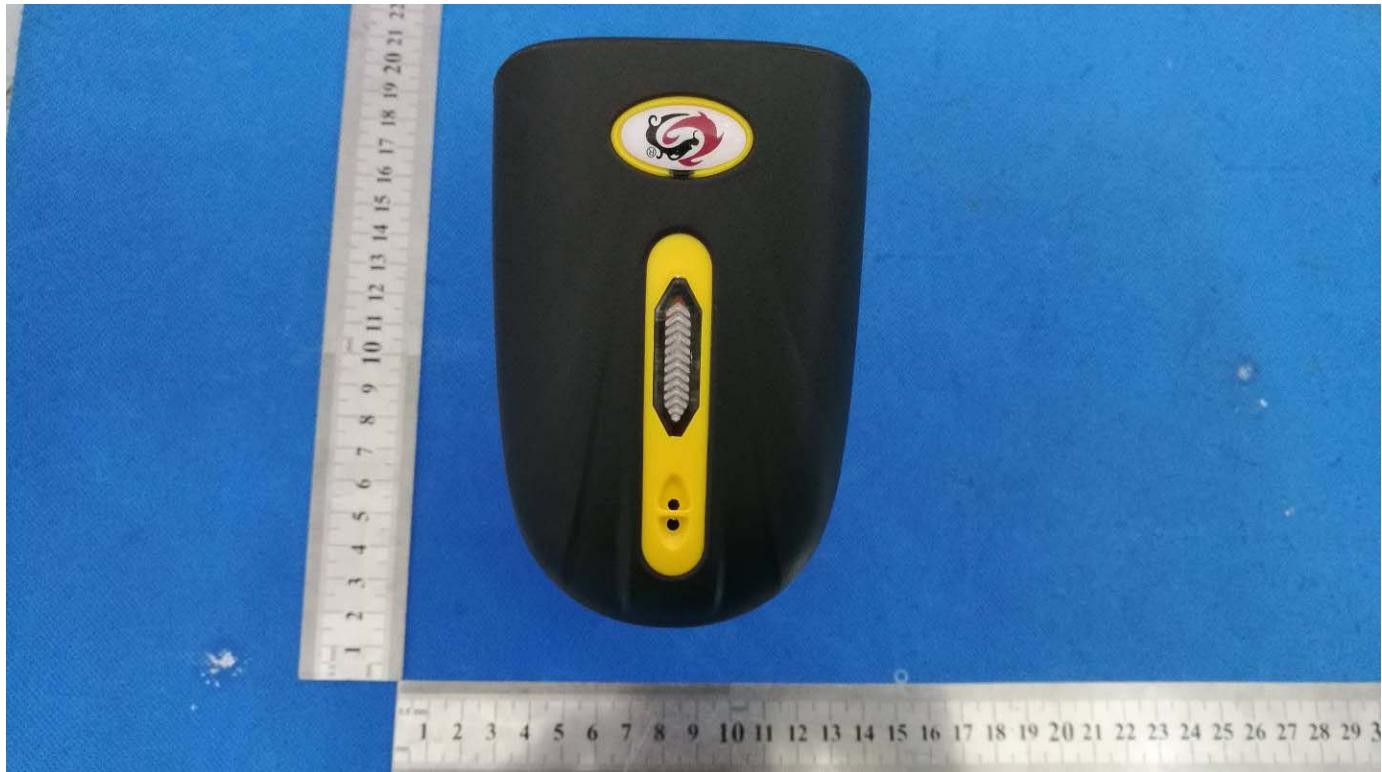
9 APPENDIX-Photographs of EUT Constructional Details





Report No. 4787815735-1

Issued Date: 2017-02-21





Report No. 4787815735-1

Issued Date: 2017-02-21





Report No. 4787815735-1

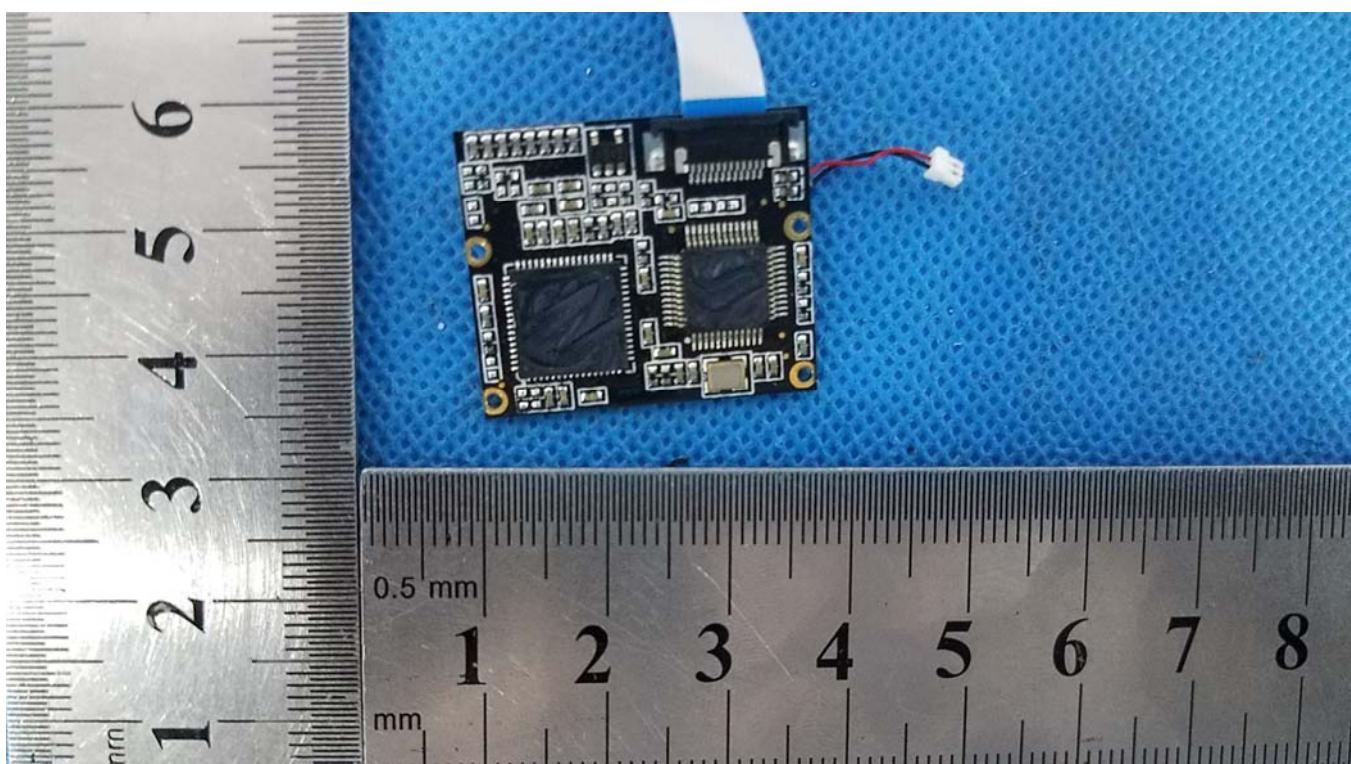
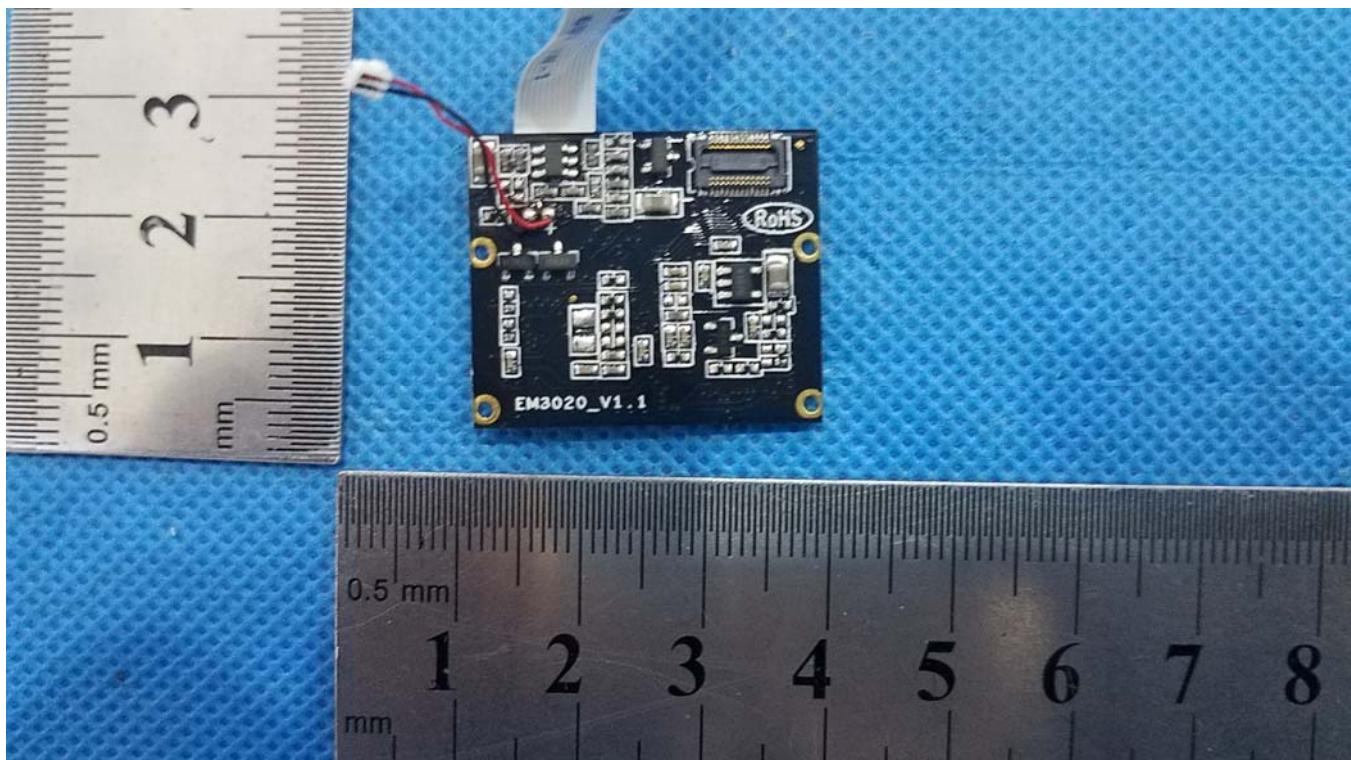
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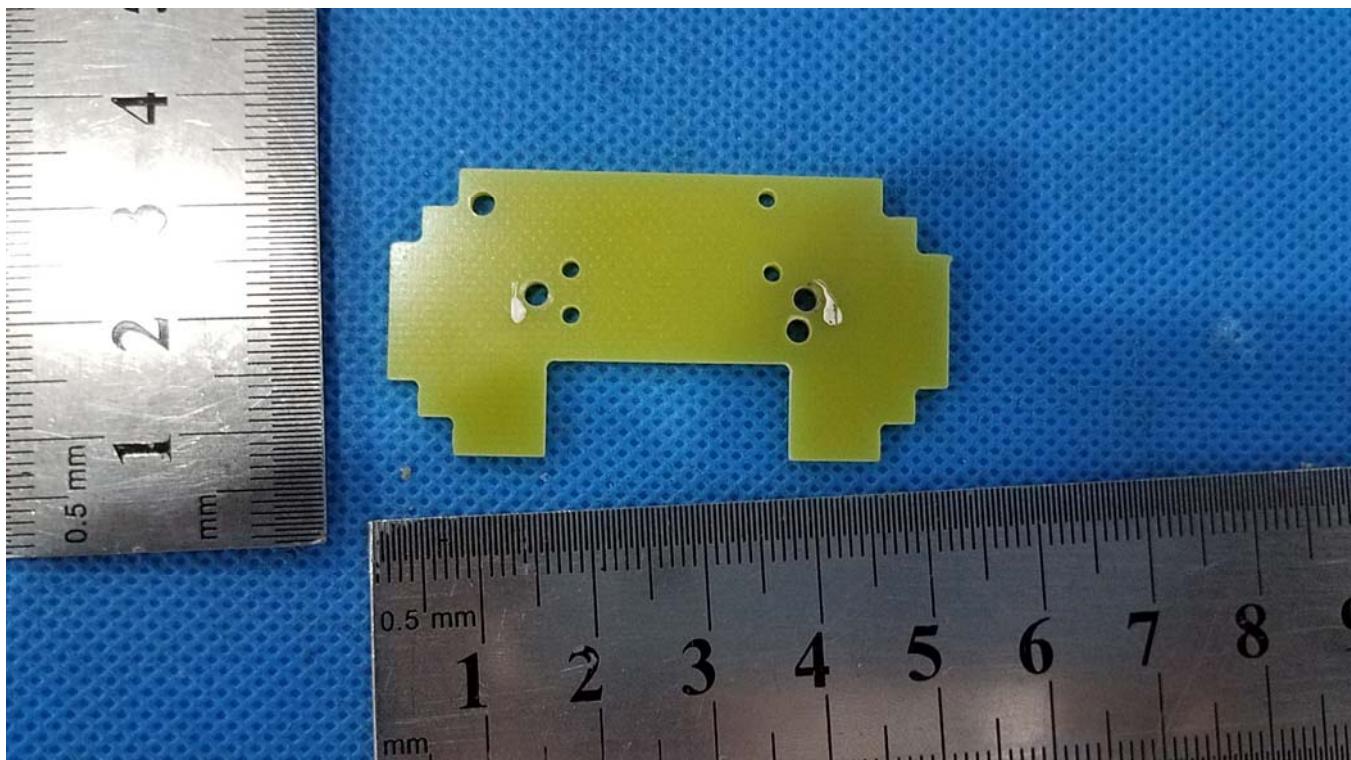


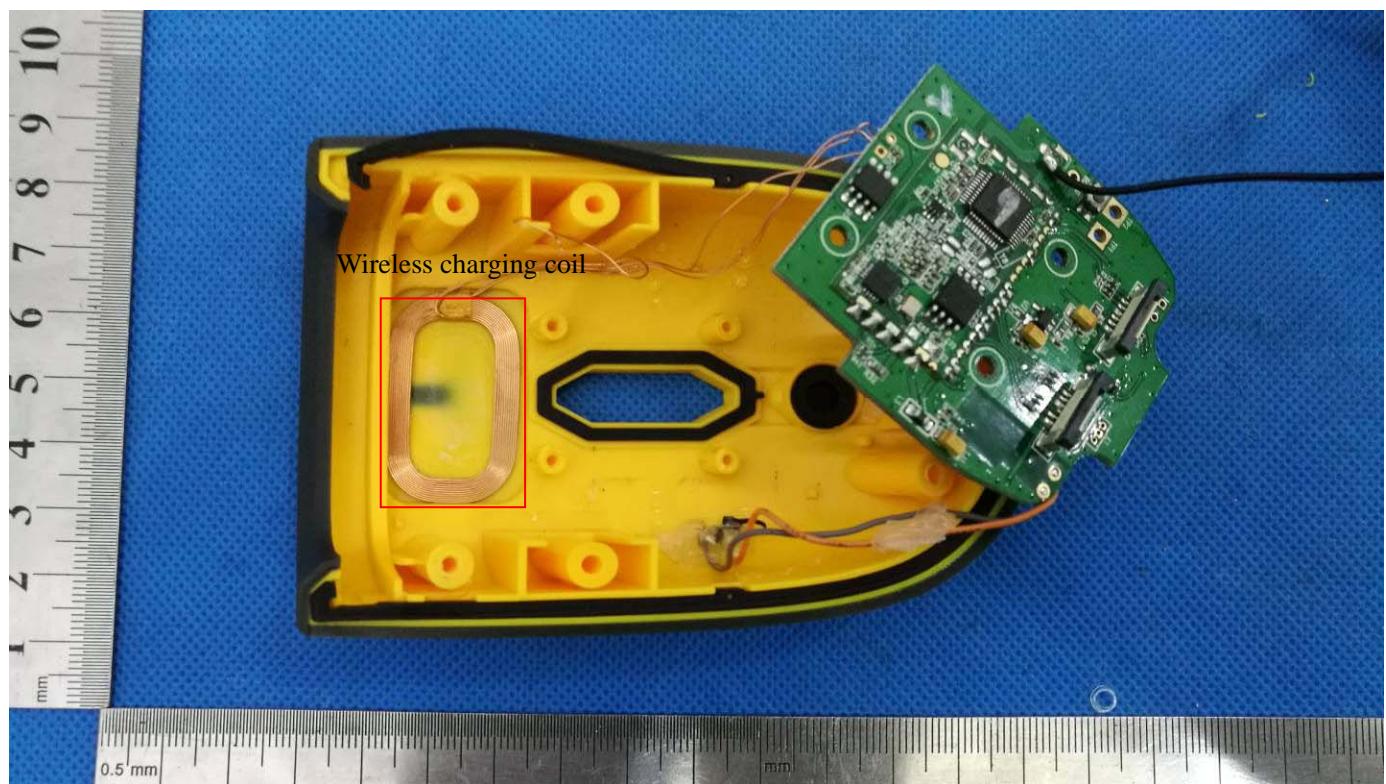
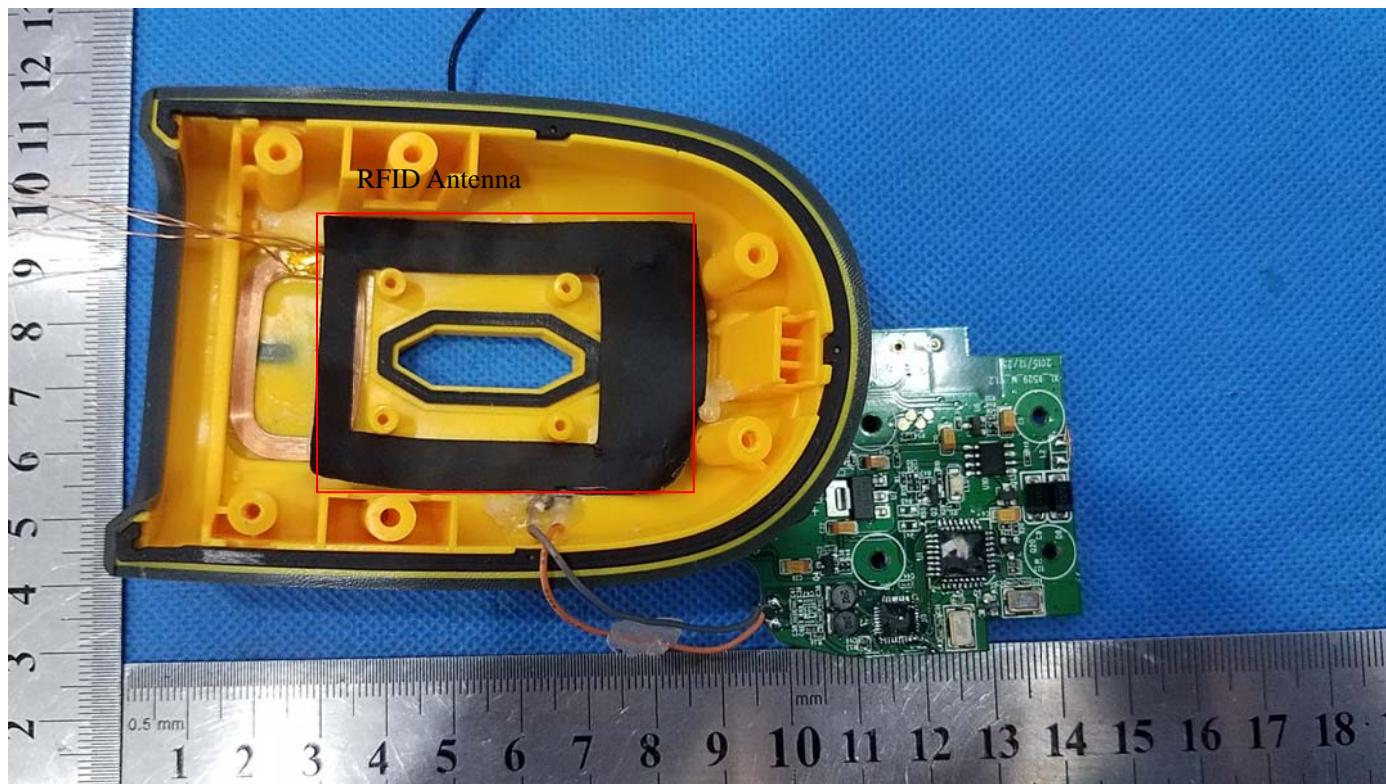


Report No. 4787815735-1

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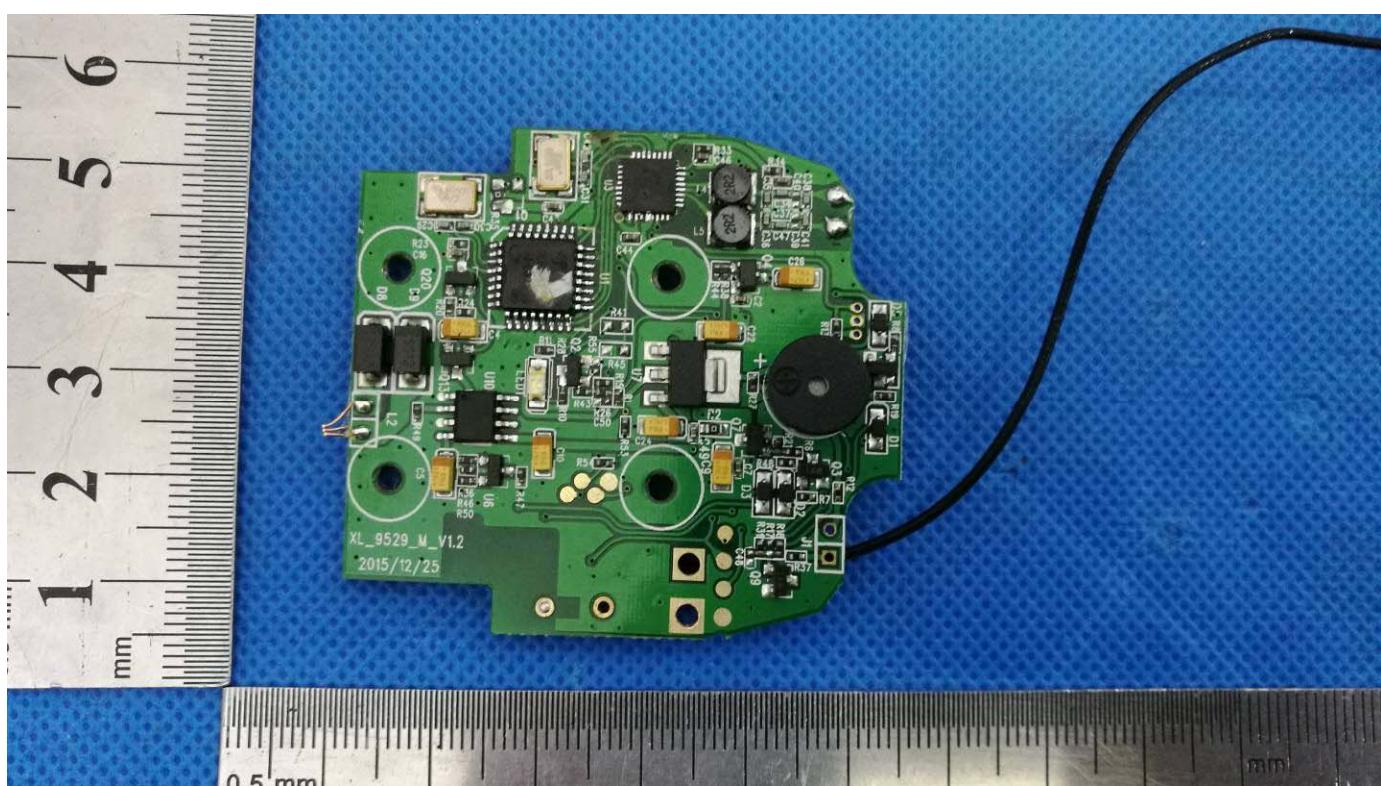
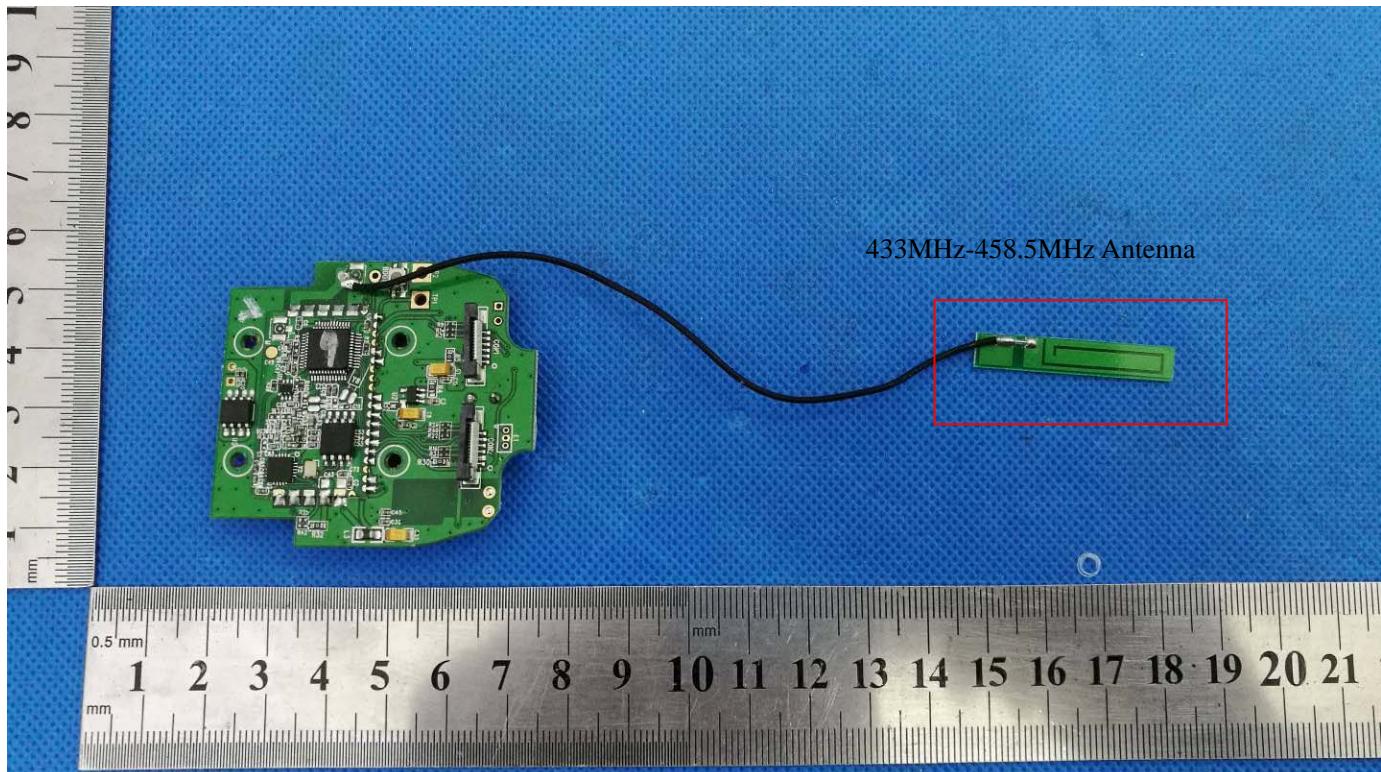






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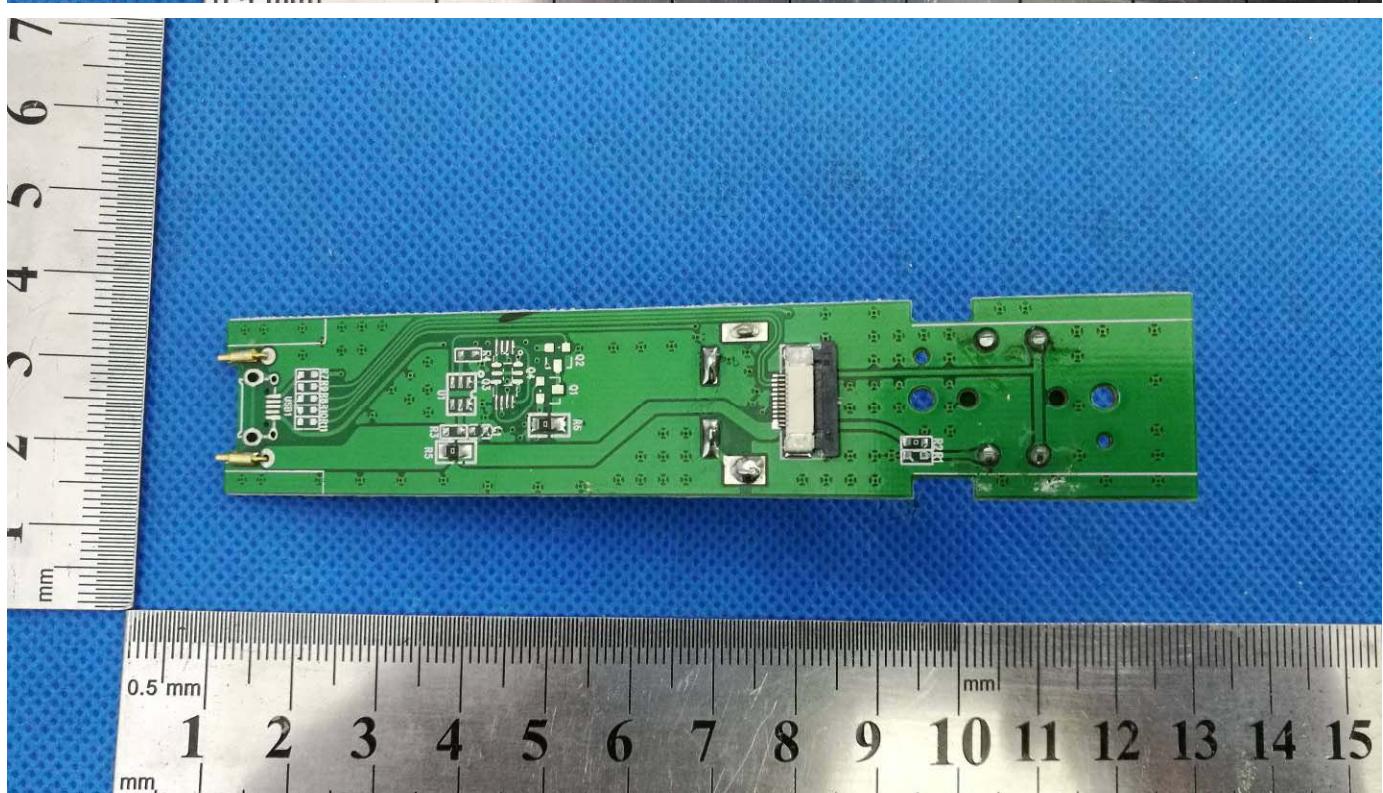
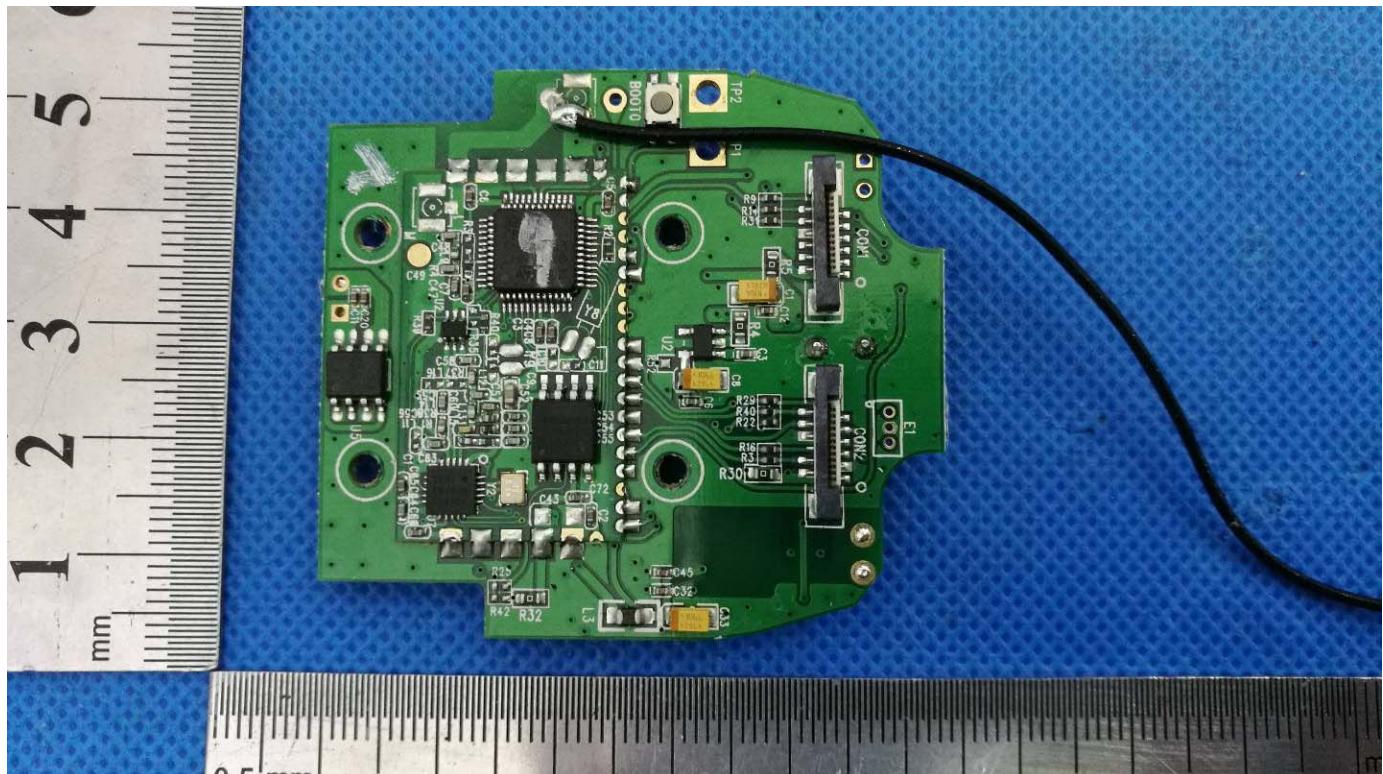
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Report No. 4787815735-1

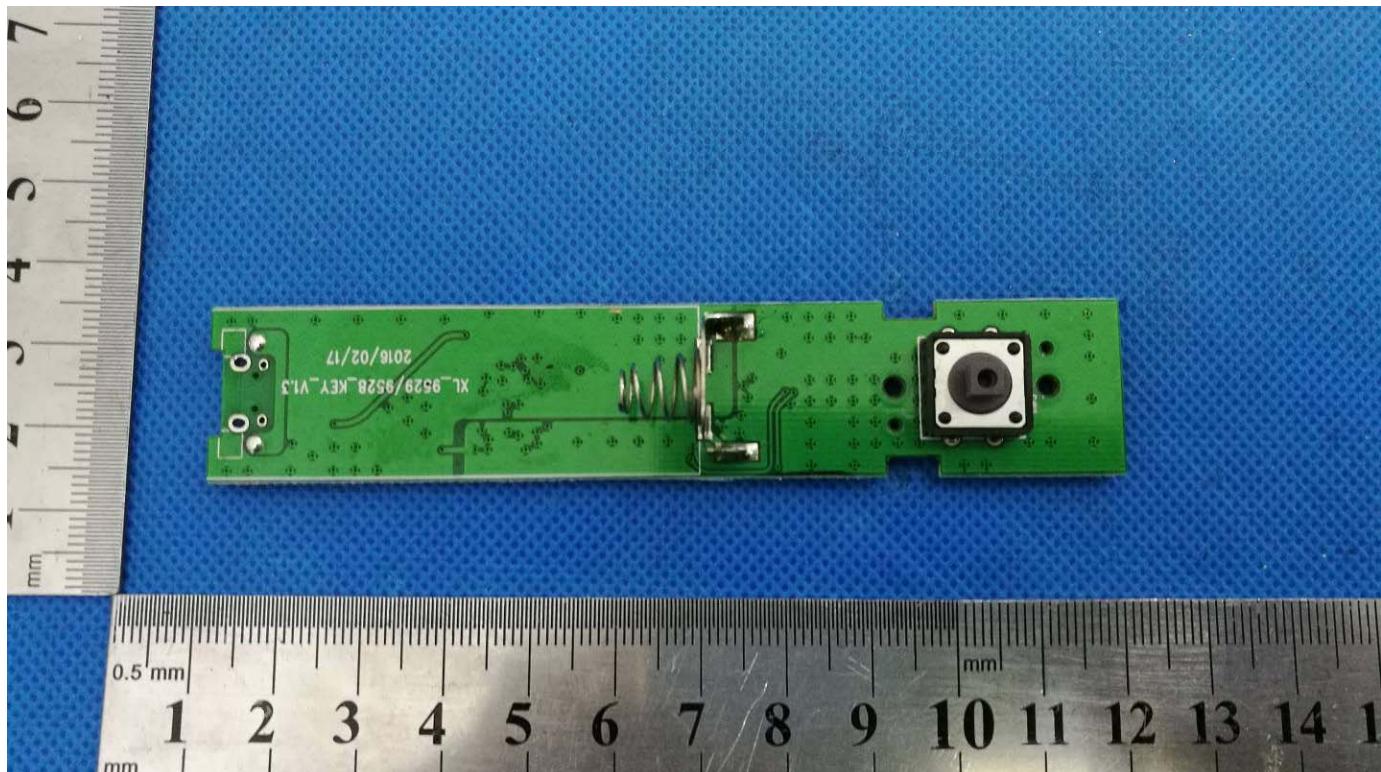
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End of Report