

TEST REPORT

Report No...... : **ATA2605048E**

FCC ID..... : **2BWZR-F30**

Applicant..... : **Zhuhai Singhigher Technology Co., Ltd.**

Address..... : No. 4 Pingdong 2nd Road, Xiangzhou District, Zhuhai City,
Guangdong Province, China

Manufacturer..... : **Zhuhai Singhigher Technology Co., Ltd.**

Address..... : No. 4 Pingdong 2nd Road, Xiangzhou District, Zhuhai City,
Guangdong Province, China

Product Name..... : **F30**

Trade Mark..... : HHLPRO

Test Model..... : F30

Standard..... : **FCC CFR Title 47 Part 15 Subpart C Section 15.236**

Date of Receipt..... : May. 08, 2026

Date of Test Date..... : May. 08, 2026~July. 27, 2026

Date of issue..... : July. 27, 2026

Test result..... : **Pass**

Compiled by:
(Printed name+signature)

Lily Zheng

Lily Zheng

Supervised by:
(Printed name+signature)

Travis Young

Travis Young

Approved by:
(Printed name+signature)

Jason chen

Jasonchen

Testing Laboratory Name..... : **Shenzhen ATA Testing Lab. Inc**

Address..... : 4th Floor, Building 10, No.60 Nanchang Road, Nanchang
Community, Xixiang Street, Bao'an District, Shenzhen City,
China

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.236: Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, 614-616 MHz and 657-663 MHz

ANSI C63.10-2020 + Cor.1-2023: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	July. 27, 2026	Original



1.3. Test Description

FCC Part 15 Subpart C(15.236)			
Test Item	Standard Section	Result	Remark
	FCC		
Antenna Requirement	FCC Part 15.203	Pass	
RF Power Output	FCC Part 15.236(d)(1)(i)	Pass	
Occupied Bandwidth	FCC Part 15.236(f)(1)(ii)	Pass	
Necessary Bandwidth	FCC Part 15.236(g)(2)	Pass	
Radiated Spurious Emission	FCC Part 15.236(g)(4)	Pass	
Frequency Stability	FCC Part 15.236(f)(iii)	Pass	
Conducted Emissions	FCC Part 15.207	Pass	

Note:(1) "N/A" denotes test is not applicable to this device.



1.4. Test Facility

Test Site	Shenzhen ATA Testing Lab. Inc
Test Site Location	4th Floor, Building 10, No.60 Nanchang Road, Nanchang Community, Xixiang Street, Bao'an District, Shenzhen City, China
Telephone:	+86 0755-2783-0095
Fax:	+86 0755-2783-0095
The test facility is recognized, certified, or accredited by these organizations:	A2LA Accreditation Lab Certificate Number: 839205
	FCC Accreditation Lab Designation Number: CN1455
	ISED Accreditation Lab Designation Number: CN0201



1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen ATA Testing Lab. Inc system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Below is the best measurement capability for Shenzhen ATA Testing Lab. Inc

Test Items	Measurement Uncertainty	U(k=2)
Radiated Emissions 9K-30MHz	± 2.70 dB	1.96
Radiated Emissions 30~1000MHz	± 5.432 dB	1.96
Radiated Emissions 1~18GHz	± 3.88 dB	1.96
Radiated Emissions 18~40GHz	± 5.32 dB	1.96
Conducted Emissions 9kHz~150KHz	± 3.90 dB	1.96
Conducted Emissions 150Hz~30MHz	± 3.52 dB	1.96
Conducted spurious emissions	± 1.60 dB	1.96
RF Output Ppower Conducted	± 0.58 dB	1.96
Occupied Bandwidth	$\pm 0.463\%$	1.96
Frequency Stability	25Hz	1.96
Humidity uncertainty	$\pm 2.0\%$ RH	1.96
Temperature uncertainty	$\pm 0.6^{\circ}\text{C}$	1.96
Barometric pressure uncertainty	0.5hPa	1.96

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

2. GENERAL INFORMATION

2.1. General Description of EUT

Product Name:	F30
Trade Mark:	HHLPRO
Test Model:	F30
Series Model(s):	F20,F20P
Model Difference:	The above-mentioned products share the same circuitry, PCB layout, electrical components, materials, circuit structure and decorative accessories' materials, but they differ in color.
Power Source:	Input Voltage: 5V $\pm$ 1.0A
Adpater	N/A
Battery	1500mAh 3.7V 4.44Wh
Hardware version:	V1.0
Software version:	V1.0
wireless microphone	
Modulation type:	GFSK
Operation frequency:	565-586.60MHz
Max Peak Output Power:	11.50dBm
Channel number:	32CH
Emission Bandwidth:r:	163.78KHz
Antenna type:	2DB Black external antenna
Antenna gain:	1.50dBi
Note:(1)All antenna information is provided by the manufacturer, test laboratory will not be responsible if any error. (2) The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity. (3) "N/A" Indicates inapplicability	

2.2. DESCRIPTION OF THE TEST MODES

Operating Frequency List: The device under test was tested under typical operating conditions. The applicant provided a communication fixed-frequency prototype to control the device under test, in order to maintain continuous transmit and receive modes for testing. 1 channels of wireless microphones were provided for the device under test. Channels 1 were selected for testing. Operating Frequency List:

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
01	565.00	12	577.80	23	568.70
02	566.00	13	579.80	24	570.10
03	567.20	14	580.80	25	571.10
04	568.20	15	582.00	26	572.30
05	569.60	16	575.60	27	573.30
06	570.60	17	584.40	28	574.90
07	571.80	18	585.60	29	576.10
08	572.80	19	586.60	30	577.10
09	574.40	20	565.50	31	578.30
10	575.60	21	566.50	32	580.30
11	576.60	22	567.70		

Following channel(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY
Low	565.00
Middle	575.60
High	586.60

2.3. BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



AC Conducted Emission Test



RF Conducted Test



2.4. DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Mode/Type	Note
E-2	Adapter	Guangzhou Ji Yin Power Electronics Co Ltd	JY-546200	Test Use

Item	Equipment	Mfr/Brand	Length	Note
C-1	line	N/A	1m	Test use

Note : (1) For detachable type VO cables should be specified the length in cm in Lengtha column.

(2) "YES" is means "with core"; "NO" is means "without core".

2.5. Measurement Instruments List

Radiation emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	ATA-E-001	966 chamber	CRT	9*6*6M	CRTNDCR966	2025-03-21	2028-03-20
2	ATA-E-011	AC Power Source	XINOUEHUA	APW-1300N	202504292663	2026-05-07	2027-05-06
3	ATA-E-013	DC Power Source	XINOUEHUA	ADC250-32D	202504292667	2026-05-07	2027-05-06
4	ATA-E-033	Receiver	R&S	ESPI7	100092	2026-05-07	2027-05-06
5	ATA-E-034	Broadband antenna	Schwarzbeck	VULB9168	01839	2025-07-17	2026-07-17
6	ATA-E-035	High Frequency Horn Antenna	Schwarzbeck	BBHA9120D	03169	2025-07-17	2026-07-17
7	ATA-E-038	Cable	Times	0-18GHz	/	2026-05-07	2027-05-06
8	ATA-E-040	6dB attenuator	Zhengchang Liubo	6dB	/	2026-05-07	2027-05-06
9	ATA-E-039	Cable	Times	0-1GHz	/	2026-05-07	2027-05-06
10	ATA-E-041	Preamplifier	COM MV	DLNA8-1-18G-2705	10241234	2026-05-07	2027-05-06
11	ATA-E-042	Preamplifier	COM MV	DLNA8-0.009-1000-1034	5252881	2026-05-07	2027-05-06
12	ATA-E-044	Filter	MWRFTesT	ZHPF6-C3000-18000-3129	08252098	2026-05-07	2027-05-06
13	ATA-E-045	Filter	MWRFTesT	ZHPF6-C6500-18000-175	08252097	2026-05-07	2027-05-06
14	ATA-E-046	Filter	MWRFTesT	ZBSF6-C2400-2483.5-543	08252096	2026-05-07	2027-05-06
15	ATA-E-047	Filter	MWRFTesT	ZBSF6-C5100-5900-5713	08252095	2026-05-07	2027-05-06
16	ATA-E-051	Spectrum Analyzer	R&S	FSV40-N	101779	2025-07-29	2026-07-28
17	ATA-E-052	Cable	HELPLIGHT	2.92J/2.92J 10M	/	2026-01-19	2027-01-18
18	ATA-E-054	Cable	HELPLIGHT	2.92J/2.92J 0.8M	/	2026-01-19	2027-01-18
19	ATA-E-059	Antenna Tower	CRT	AT-1	/	/	/
20	ATA-E-005	Temperature and humidity meter	deli	LE502-WH	/	2026-05-07	2027-05-06
21	ATA-E-064	Barometer	Qingping	CGP23W	/	2026-01-28	2027-01-27
22	ATA-E-048	Loop Antenna	ZHINA	ZN30900C	21104CCUTSE019	2026-05-07	2027-05-06
23	ATA-E-049	Horn Antenna	ECHO MICrowave.,Ltd.	OBH100400	12221225	2026-05-07	2027-05-06
24	ATA-E-051	Spectrum Analyzer	R&S	FSV40-N	101779	2026-05-07	2027-05-06

Conduction emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	ATA-E-032	EMI TEST RECEIVER	Schwarzbeck	ESCI3	1009300	2026-05-07	2027-05-06
2	ATA-E-037	Pulse Limiter	Schwarzbeck	VTSD 9561 F-N	/	2026-05-07	2027-05-06
3	ATA-E-069	Conductive test cable	Schwarzbeck	2.5m	N/A	2026-01-28	2027-01-27
4	ATA-E-036	Artificial Mains Network	Schwarzbeck	NSLK 8127	01169	2026-05-07	2027-05-06
5	ATA-E-072	Three-Line V-Network	ZHINAN	2N33770A	13003	2026-01-26	2027-01-27
6	ATA-E-009	Temperature and humidity meter	deli	LE502-WH	/	2026-05-07	2027-05-06
7	ATA-E-010	Barometer	Qingping	CGP23W	/	2026-05-07	2027-05-06

RF Conducted Test							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
	ATA-E-029	Spectrum Analyzer	Keysight	N9020A	MY50530404	2026-05-07	2027-05-06
1	ATA-E-030	MXG Anaio Signal Generator	Agilent	N5181A	MY47420598	2026-05-07	2027-05-06
2	ATA-E-031	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	161163	2026-05-07	2027-05-06
3	ATA-E-043	Radio Control Unit	MWRFTest	MW100-RFCB	MW250428A TA-55	2026-05-07	2027-05-06

Note:

1)The Cal. Interval was one year.

2)The cable loss has calculated in test result which connection between each test instruments.

2.5. Test Software

Software name	Model	Version
Conducted emission Measurement Software	EZ-EMC	FARAD-3A1.1+
Radiated emission Measurement Software	EZ-EMC	FARAD-3A1.1+
Bluetooth and WIFI Test System	MWRF8310	2.0.0.0

3. TEST ITEM AND RESULTS

3.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

The maximum gain of antenna was 1.50dBi.

Note: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Shenzhen ATA Testing Lab. Inc does not assume any responsibility.



3.2. Conducted Emission

Limit

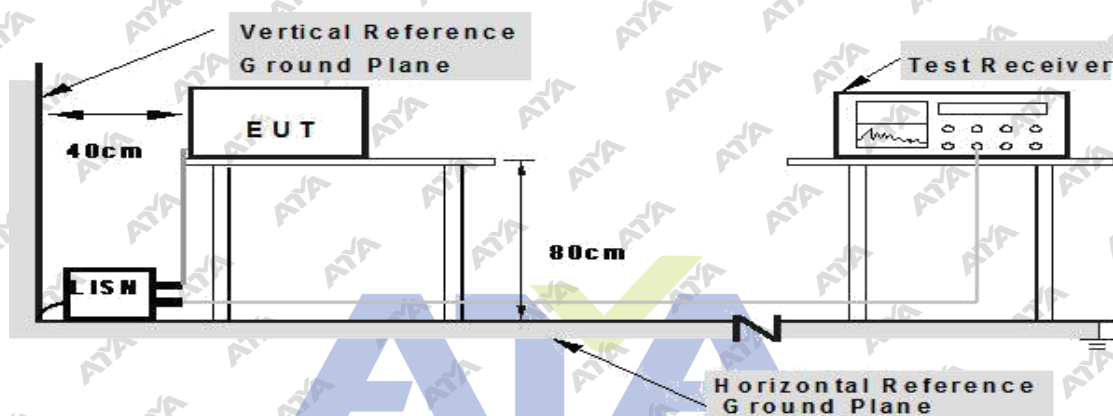
Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10-2020 + Cor.1-2023 requirements.
 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 0.8m above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 0.8m from any other grounded conducting surface.
 3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
 4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
 5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
 6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
 7. During the above scans, the emissions were maximized by cable manipulation.
- During the above scans, the emissions were maximized by cable manipulation.

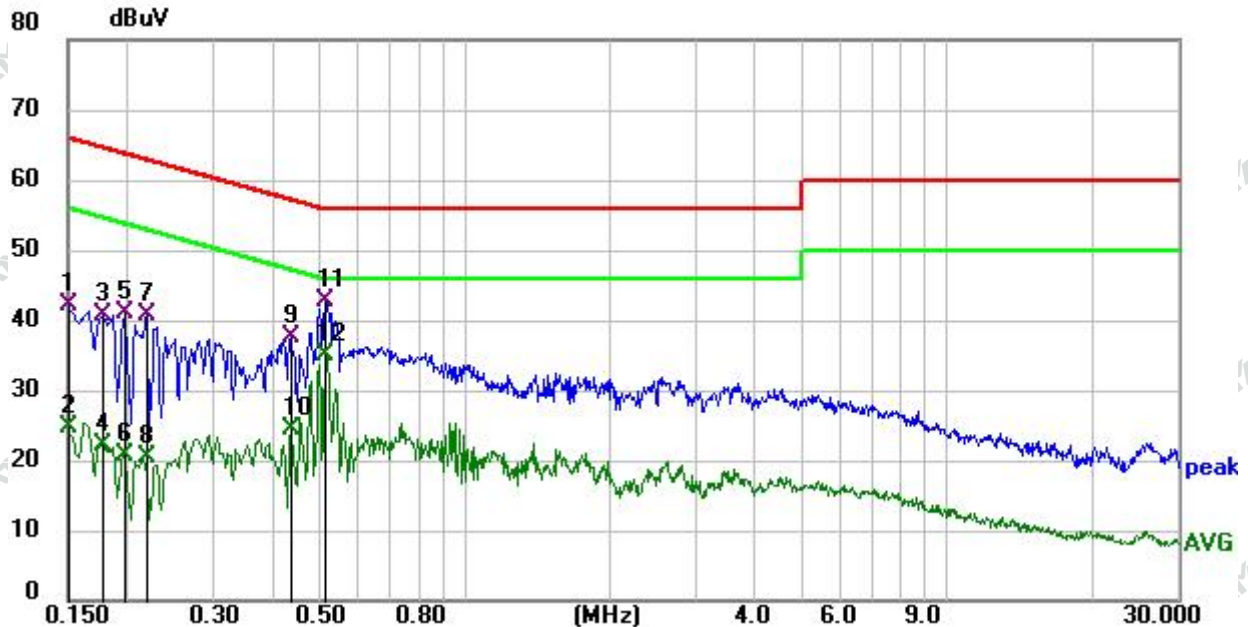
Test Mode:

N/A

Test Results

Pre-scan Low Channel, Middle Channel and High channel, and found Low Channel channel which it is worse case, so only show the test data for worse case.

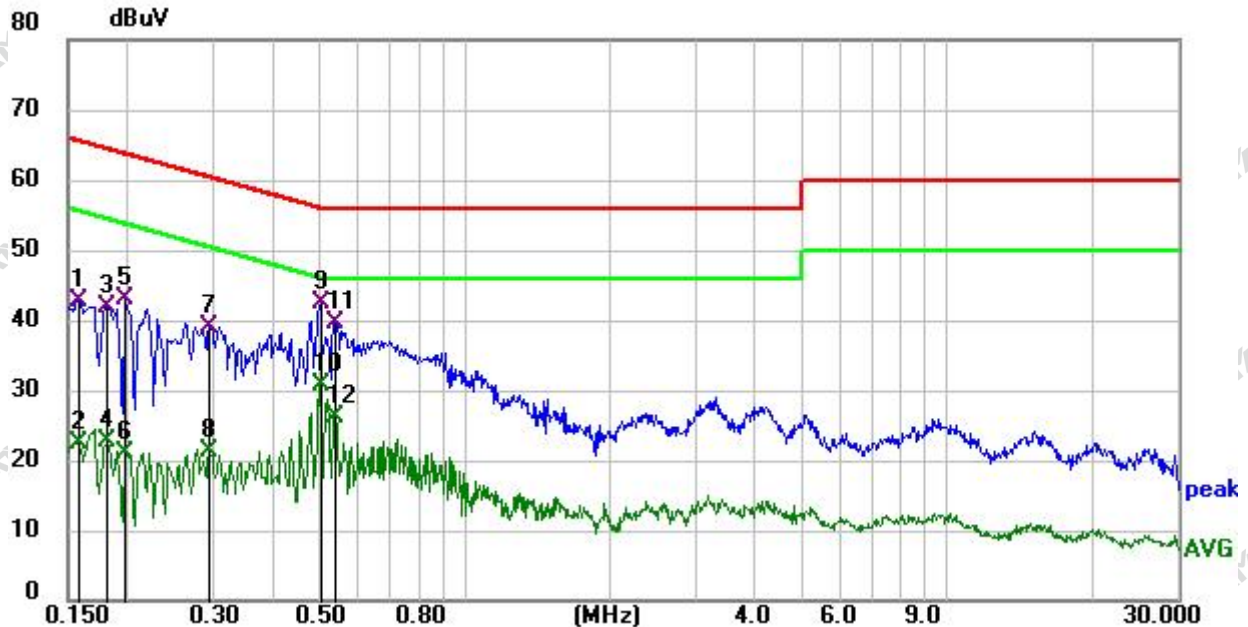
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	L
Temperature	24.8°C	Humidity	52.1%
Test Mode:	Charging+TX	Test Voltage:	DC 5V from Adapter AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	31.91	10.11	42.02	66.00	-23.98	QP
2	0.1500	14.51	10.11	24.62	56.00	-31.38	AVG
3	0.1780	30.60	10.10	40.70	64.58	-23.88	QP
4	0.1780	12.17	10.10	22.27	54.58	-32.31	AVG
5*	0.1980	30.91	10.10	41.01	63.69	-22.68	QP
6	0.1980	10.53	10.10	20.63	53.69	-33.06	AVG
7	0.2180	30.51	10.10	40.61	62.89	-22.28	QP
8	0.2180	10.23	10.10	20.33	52.89	-32.56	AVG
9	0.4340	27.31	10.12	37.43	57.18	-19.75	QP
10	0.4340	14.35	10.12	24.47	47.18	-22.71	AVG
11	0.5140	32.61	10.13	42.74	56.00	-13.26	QP
12	0.5140	24.94	10.13	35.07	46.00	-10.93	AVG

Remark: 1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	N
Temperature	24.8°C	Humidity	52.1%
Test Mode:	Charging+TX	Test Voltage:	DC 5V from Adapter AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	32.70	10.11	42.81	65.57	-22.76	QP
2	0.1580	12.32	10.11	22.43	55.57	-33.14	AVG
3	0.1815	31.85	10.10	41.95	64.42	-22.47	QP
4	0.1815	12.49	10.10	22.59	54.42	-31.83	AVG
5*	0.1980	32.79	10.10	42.89	63.69	-20.80	QP
6	0.1980	11.02	10.10	21.12	53.69	-32.57	AVG
7	0.2940	29.02	10.11	39.13	60.41	-21.28	QP
8	0.2940	11.22	10.11	21.33	50.41	-29.08	AVG
9	0.5020	32.24	10.13	42.37	56.00	-13.63	QP
10	0.5020	20.47	10.13	30.60	46.00	-15.40	AVG
11	0.5380	29.53	10.14	39.67	56.00	-16.33	QP
12	0.5380	16.10	10.14	26.24	46.00	-19.76	AVG

Remark: 1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

3.3. Maximum Output Power

Limit

The maximum radiated power shall not exceed the following values:

- (1) In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP
- (2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

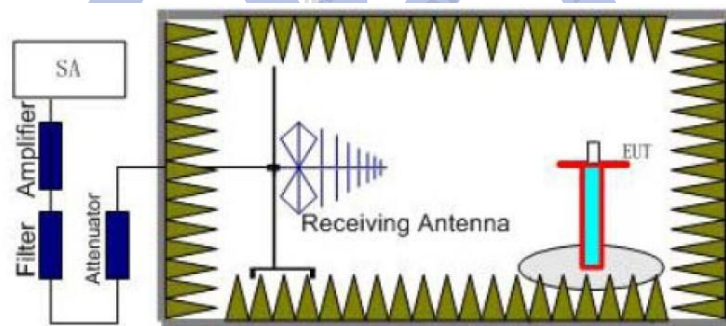
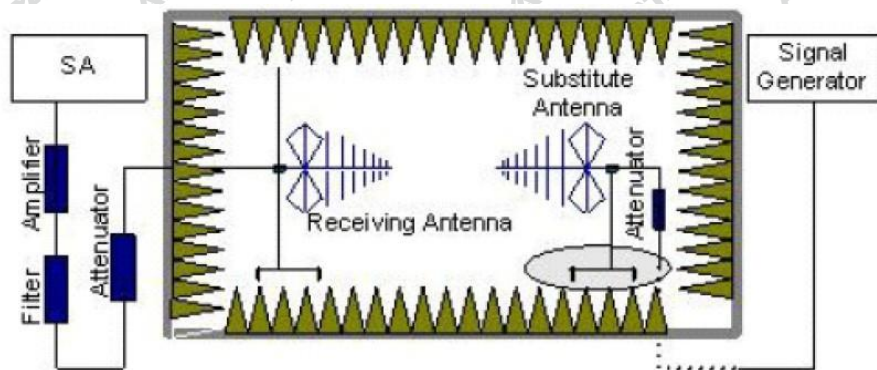
Test Procedure

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive1.antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emissionmeasurements. The height of receiving antenna is 1.5m. Detected emissions were maximized at eachfrequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiatedemission measurements of all test transmit frequencies were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT.The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the samepower value on the spectrum analyzer or receiver, The level of the spurious emissions can be calculatedthrough the level of the signal generator, cable loss, the gain of the substitution antenna and the readingof the spectrum analyzer or receiver.
Note: the channel found to contain the maximum PSD level can be used to establish the reference level.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test,SetTest Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should berecorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for thefrequency band of interest is placed at the reference point of the chamber. An RF Signal source for thefrequency band of interest is connected to the substitution antenna with a cable that has been constructedto not interfere with the radiation pattern of the antenna. A power (PMee) is applied to the input of thesubstitution antenna, and adjust the level of the signal generator output until the value of the receiverreach the previously recorded (P). The power of signal source (PMea) is recorded. The test should beperformed by rotating the test item and adiusting the receiving antenna polarization,
5. An amplifier may be connected to the Signal Source output port. And the cable should be connectbetween the Amplifier and the Substitution Antenna, The cable loss (Pa),the Substitution Antenna Gain(Ga) and the Amplifier Gain (PAg) should be recorded after test.The measurement results are obtained as described below:Power(EIRP)=PMea+PAg -Pal + Ga
6. The input level to the substitution antenna shall be recorded as power level in dBm, correctedfor any change of input attenuator setting of the measuring receiver.
7. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

(Conduction)

The RF output of the transceiver was connected to the input of the Power sensor through a sufficient attenuation.

- b. Set the RBW $> 20\text{BW}$, VBW $> 3 \times \text{RBW}$.
- c. Detector = peak.
- d Sweep time = auto couple.
- e Trace mode = max hold.
- f Allow trace to fully stabilize.
- g Use the peak marker function to determine the maximum amplitude level.

Test Configuration**Radiation****Conduction****Test Mode**

Please refer to the clause 2.3.

Test Results

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Horizontal
Temperature	24.8 °C	Humidity	52.1%
Test Mode:	TX	Test Voltage:	DC 3.7V by Battery

Test Frequency (MHz)	Peak Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limits (mW)
565.00	11.50	1.5	13.00	19.95	50
575.60	10.83	1.5	12.33	17.10	50
586.60	10.20	1.5	11.70	14.79	50

Remark: $EIRP = P_{Mea}(dBm) + P_{Ag}(dB) - P_a(dB) + G_a(dBi)$

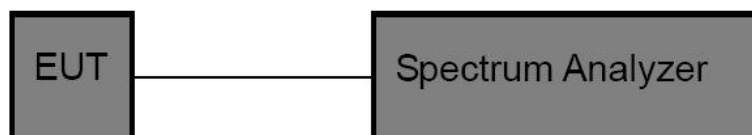


3.4. Occupied Bandwidth

Limit

One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200kHz.

Test Configuration



Test Procedure

1. The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 2 KHz RBW and 6.2 KHz VBW..

Test Mode

Please refer to the clause 2.3.

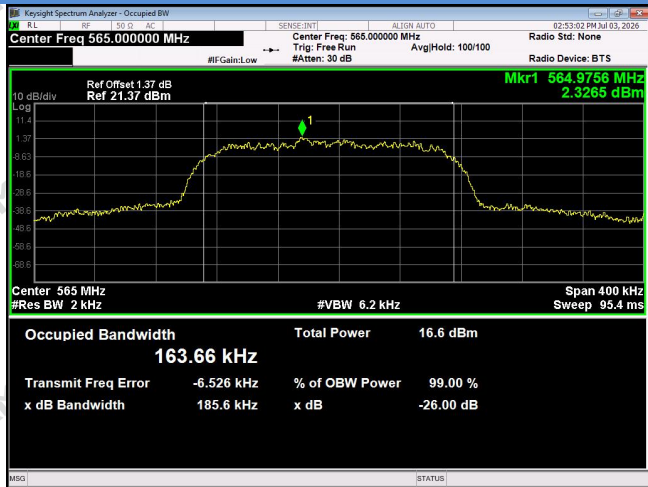
Test Results

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Temperature	24.8℃
Humidity	52.1%	Test Mode:	TX
Test Voltage:	DC 3.7V by Battery		

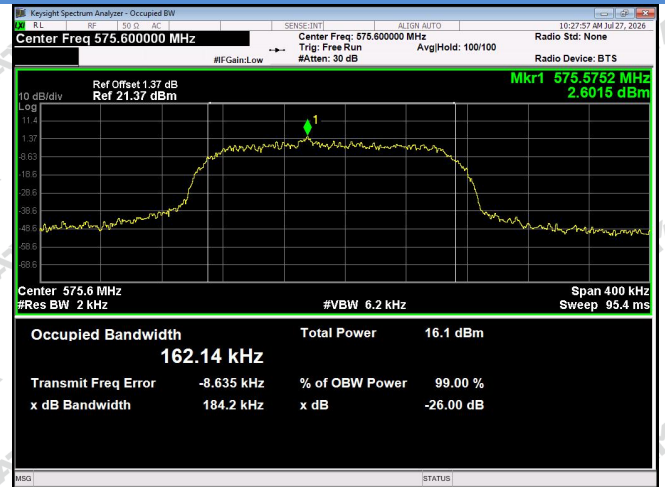
Frequency (MHz)	99% Occupied Bandwidth (KHz)	Limits(kHz)
565.00	163.66	≤200
575.60	162.14	≤200
586.60	163.78	≤200

Test Graphs:

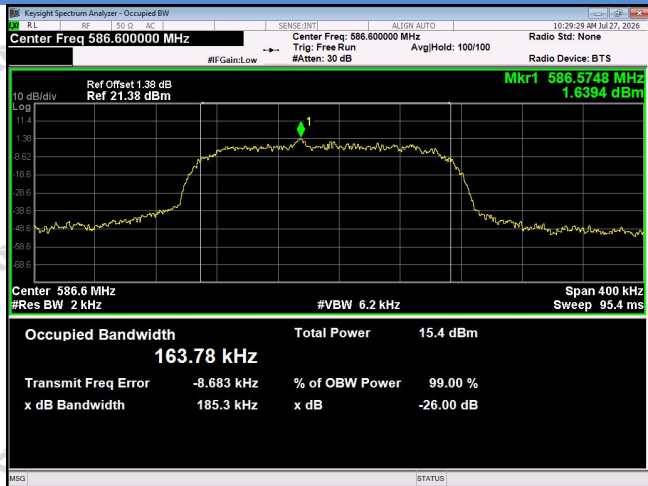
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



3.5. Necessary Bandwidth

Limit

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 as below:

The transmitter output spectrum shall be within the mask defined in figure below where B is the declared channel bandwidth

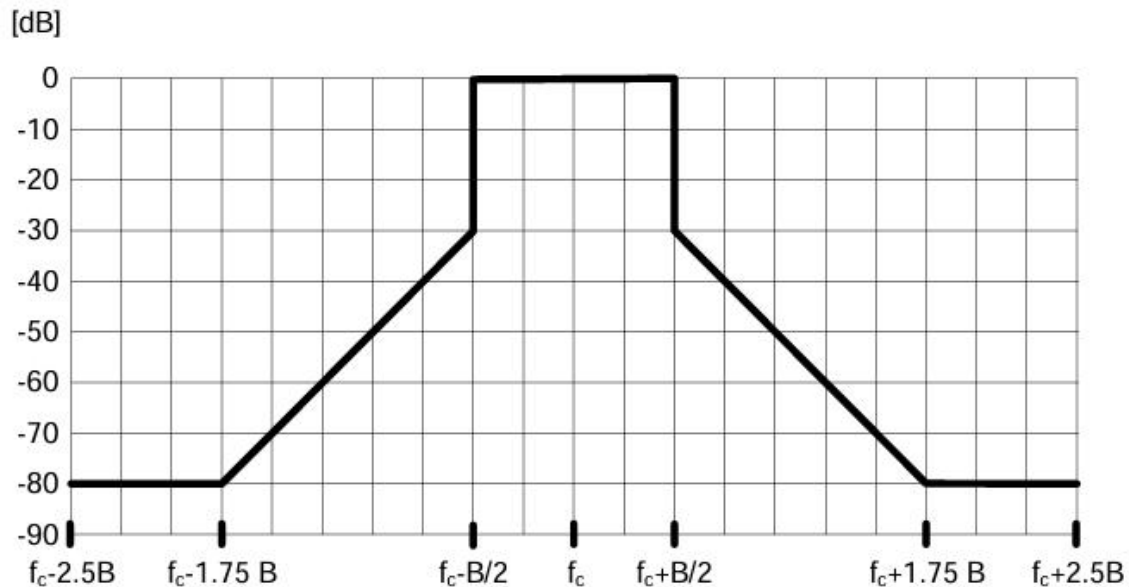
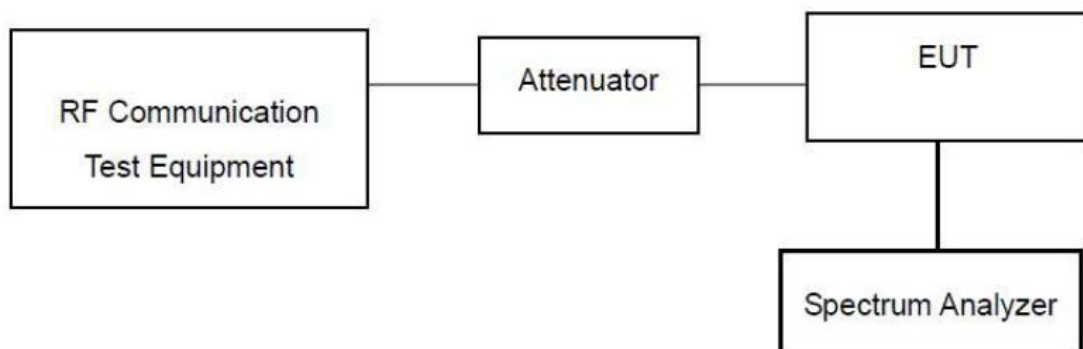


Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMA5, RBW = 1 kHz

Test Configuration



Test Procedure

Principal Spectrum Mask measuring method for digital transmitters: In 5.4.3.2.1.2 of ETSI EN 300 422-1 V2.2.1,
For digital modulated equipment except WMASThe settings of the spectrum analyser shall be:

Centre Frequency = f_{cm} (actual centre frequency)

Centre Frequency = f_{cm} (actual centre frequency)

Span = $5 \times B$

RBW = 1 kHz • VBW = 1 kHz

Sweep Points > Span / RBW • Detector = RMS

CCTESTI

Trace Mode = Clear Write

Measurement Time > 10 s

Sweep Time = Measurement Time

Sweep Mode = Single sweep

Sweep Time = Measurement Time

Sweep Mode = Single sweep

NOTE: If the DUT does not provide an unmodulated carrier to measure the actual centre frequency f_{cm} according to clause 5.4.2, the declared centre frequency f_c can be used.

Test Mode

Please refer to the clause 2.3.

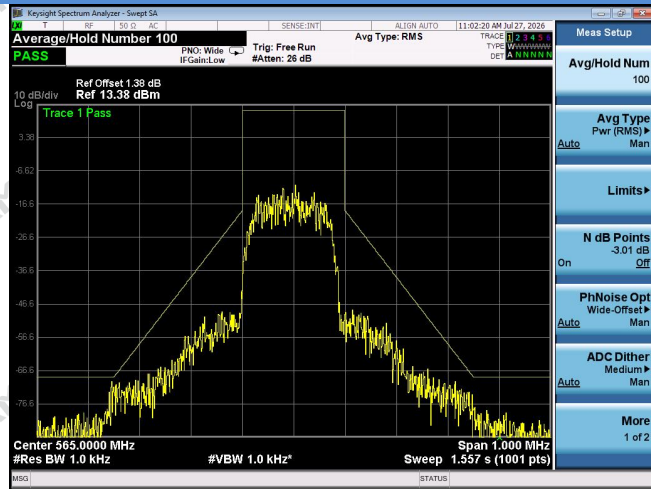
Test Result

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Temperature	24.8°C
Humidity	52.1%	Test Mode:	TX
Test Voltage:	DC 3.7V by Battery		

Frequency(MHz)	Declared Bandwidth (KHz)	B/2	2.5*B
565.00	200	100	500
575.60	200	100	500
586.60	200	100	500

Test Graphs:

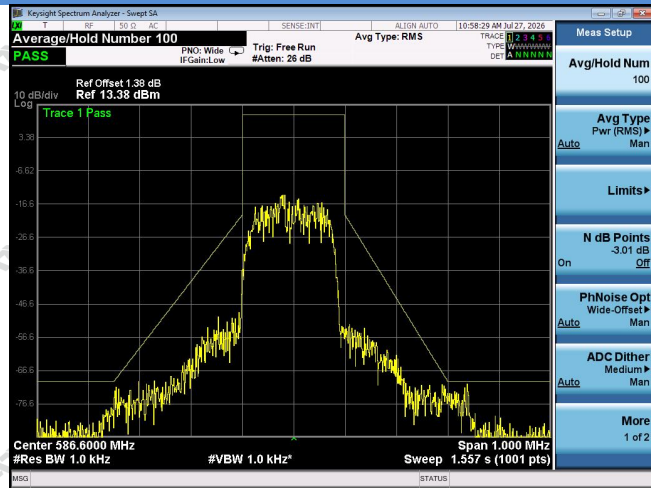
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



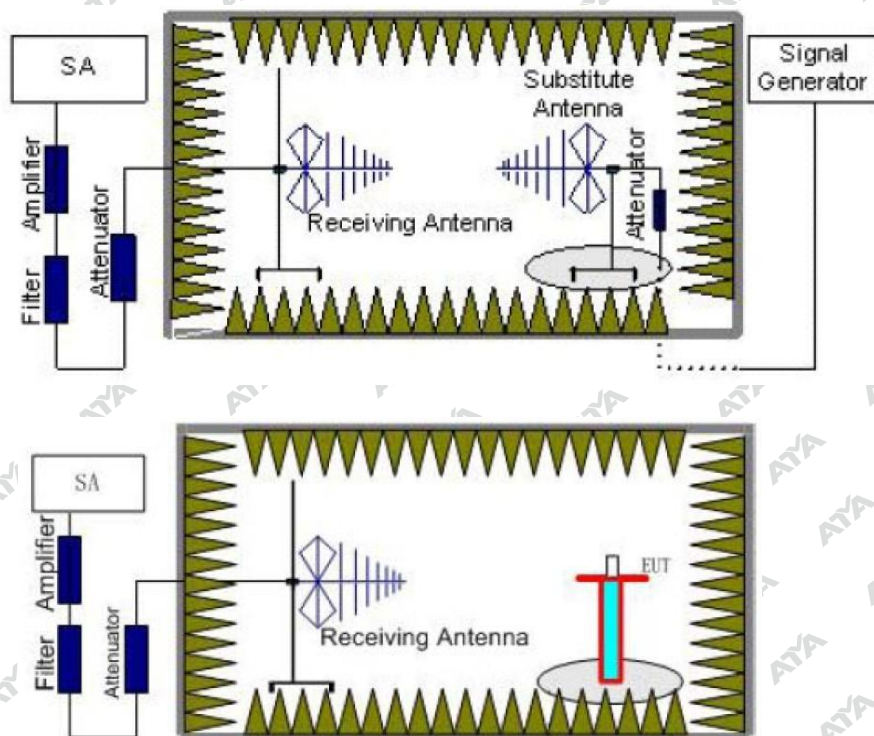
3.6. Transmitter spurious emissions

Limit

Spurious emissions are emissions outside the frequency range(s) of the equipment. The power of the spurious emissions shall not exceed the limits of table as below:

Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
$1 \text{ GHz} < f \leq F_{\text{upper}}$	-30 dBm	$F_c + 2,5 B \leq f \leq f_c + 10 B$: 30 kHz $F_c + 10 B < f \leq f_c + 12 B$: 300 kHz $f > f_c + 12 B$: 1 MHz $f < f_c - 12 B$: 1 MHz $f_c - 12 B \leq f < f_c - 10 B$: 300 kHz $f_c - 10 B \leq f \leq f_c - 2,5 B$: 30 kHz

Test Configuration



Test Procedure

1. The EUT was placed on a turntable with 1.5m height.
 2. The test distance between the receiving antenna and the EUT is 3 meter, while the receiving (test) antenna is kept at 1.5 meter height.
 3. Set EUT in continuous transmitting with maximum output power at test frequency.
 4. The table was rotated from 0 to 360 degree to search the highest radiated emission.
 5. Repeat step 3 to 4 for each polarization and test channel to find the worst emission level.
- The results obtained are compared to the limits in order to prove compliance with the requirement.

Test Mode

Please refer to the clause 2.3.

Test Result

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Temperature	24.8℃
Test Mode:	TX	Humidity	52.1%
Test Voltage:	DC 3.7V by Battery		

The test frequency range from 25MHz to 4GHz and recorded worst at below:

Test mode:Tx(565.00MHz)					
Frequency (MHz)	Pol.IAnt	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
161.71	V	-65.68	-36.00	-29.68	PASS
1081.85	V	-65.04	-30.00	-35.04	
1621.73	V	-70.79	-30.00	-40.79	
--	V	--	--	--	
161.71	H	-65.85	-36.00	-29.85	
1081.85	H	-66.64	-30.00	-36.64	
1621.73	H	-71.59	-30.00	-41.59	
--	H	--	-	--	
Test mode:Tx(575.60MHz)					
Frequency (MHz)	Pol.IAnt	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
154.15	V	-61.33	-36.00	-25.33	PASS
1137.3	V	-61.26	-30.00	-31.26	
1715.45	V	-66.62	-30.00	-36.62	
--	V	--	--	--	
154.15	H	-61.74	-36.00	-25.74	
1137.3	H	-63.49	-30.00	-33.49	
1715.45	H	-68.31	-30.00	-38.31	
--	H	-61.33	-	--	

Test mode:Tx(586.60MHz)					
Frequency (MHz)	Pol./Ant	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
148.22	V	-61.68	-36.00	-25.68	PASS
1194.44	V	-62.53	-30.00	-32.53	
1797.28	V	-67.75	-30.00	-37.75	
--	V	--	--	--	
148.22	H	-63.57	-36.00	-27.57	
1194.44	H	-64.65	-30.00	-34.65	
1797.28	H	-69.27	-30.00	-39.27	
148.22	H	-61.68	--	-25.68	
1194.44	H	-62.53	--	-32.53	

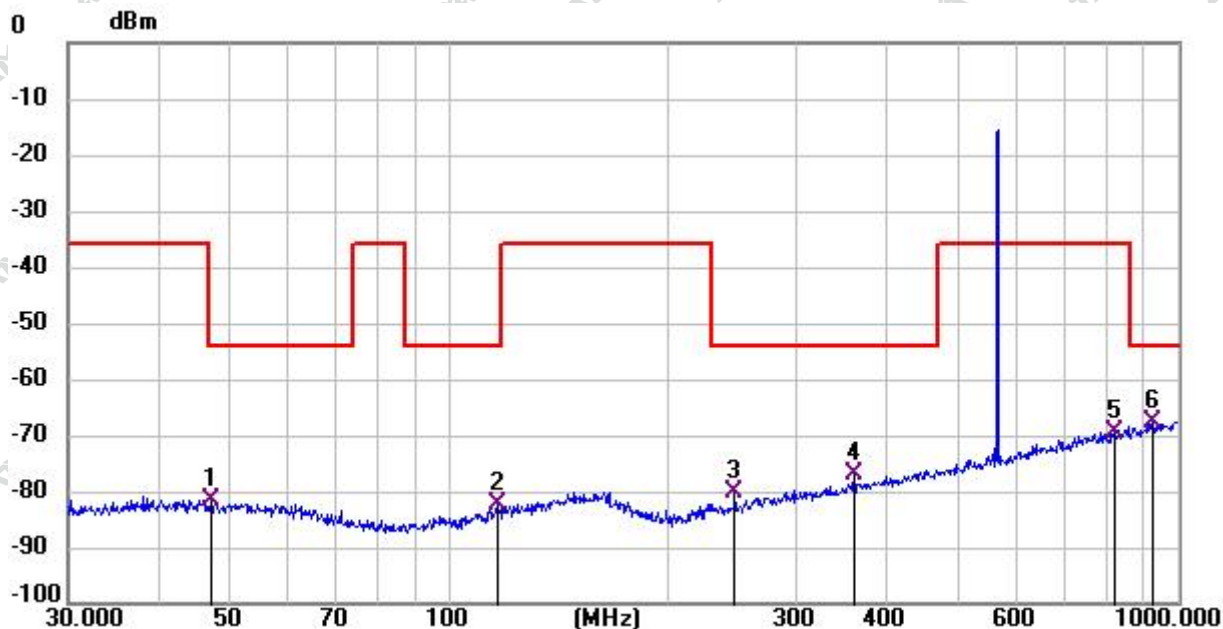
Remark: 1. The test frequency range from 25MHz to 4GHz, RBW/VBW: 100 KHz/300KHz below 1GHz, RBW/VBW: 1000 KHz/3000KHz above 1GHz. 2. "--"Other emission levels were very low against the limit and not reported.

1) so only show the test data for worse case.



Results of Radiated Emissions (30MHz~ 1000MHz)

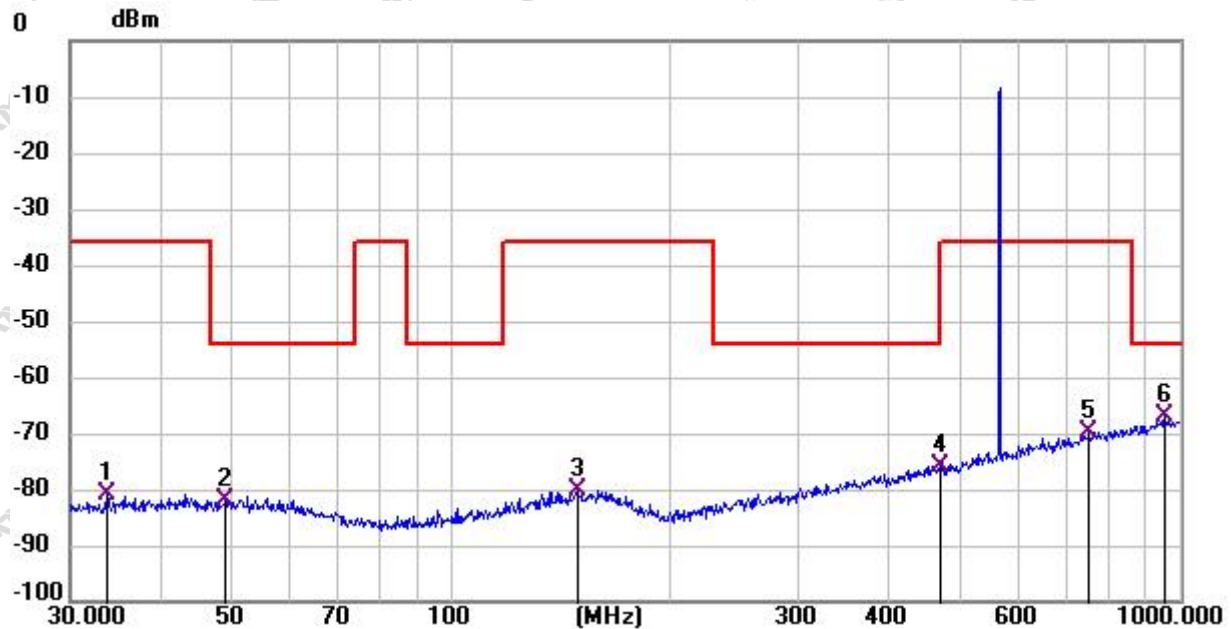
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Horizontal
Temperature	24.8℃	Humidity	52.1%
Test Mode:	CHA-Tx(565.00MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	47.1598	-68.50	-12.98	-81.48	-54.00	-27.48	QP
2	116.5400	-68.23	-13.98	-82.21	-54.00	-28.21	QP
3	246.8150	-66.90	-13.27	-80.17	-54.00	-26.17	QP
4	360.4476	-67.11	-9.99	-77.10	-54.00	-23.10	QP
5	818.8340	-68.40	-1.03	-69.43	-36.00	-33.43	QP
6*	922.5157	-68.11	0.27	-67.84	-54.00	-13.84	QP

Emission Level= Read Level+ Correct Factor

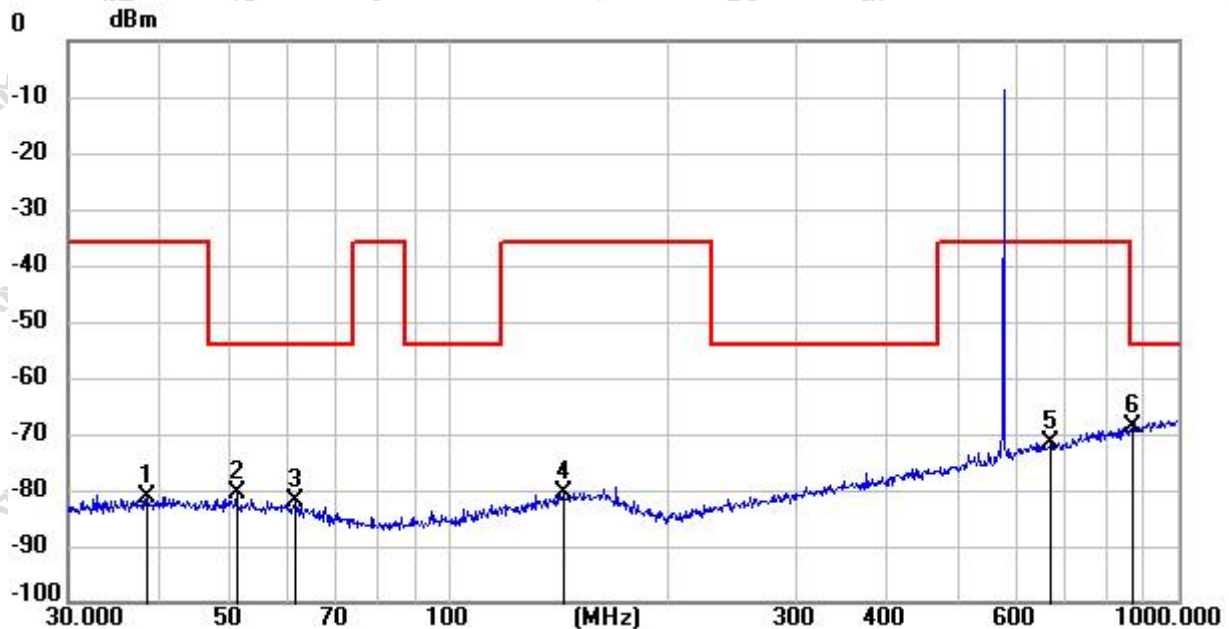
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Vertical
Temperature	24.8 °C	Humidity	52.1%
Test Mode:	CHA-Tx(565.00MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	33.7986	-67.47	-13.39	-80.86	-36.00	-44.86	QP
2	49.0144	-69.07	-13.07	-82.14	-54.00	-28.14	QP
3	148.9624	-68.56	-11.56	-80.12	-36.00	-44.12	QP
4	468.8762	-68.29	-7.44	-75.73	-54.00	-21.73	QP
5	750.1082	-68.07	-1.84	-69.91	-36.00	-33.91	QP
6*	955.4381	-67.70	0.68	-67.02	-54.00	-13.02	QP

Emission Level= Read Level+ Correct Factor

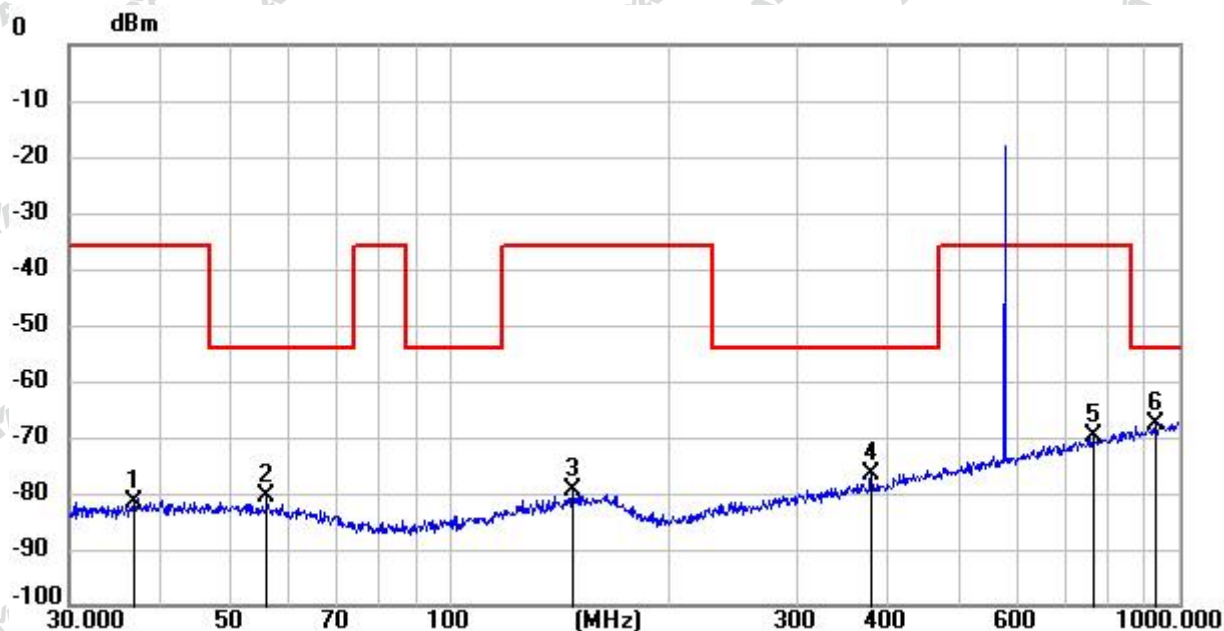
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Vertical
Temperature	24.8°C	Humidity	52.1%
Test Mode:	CHA-Tx(575.600MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	38.6160	-68.46	-12.74	-81.20	-36.00	-45.20	QP
2	51.1209	-67.23	-13.15	-80.38	-54.00	-26.38	QP
3	61.5618	-68.05	-13.93	-81.98	-54.00	-27.98	QP
4	143.3261	-68.50	-11.93	-80.43	-36.00	-44.43	QP
5	670.4893	-68.31	-3.34	-71.65	-36.00	-35.65	QP
6*	866.0879	-68.37	-0.54	-68.91	-54.00	-14.91	QP

Emission Level= Read Level+ Correct Factor

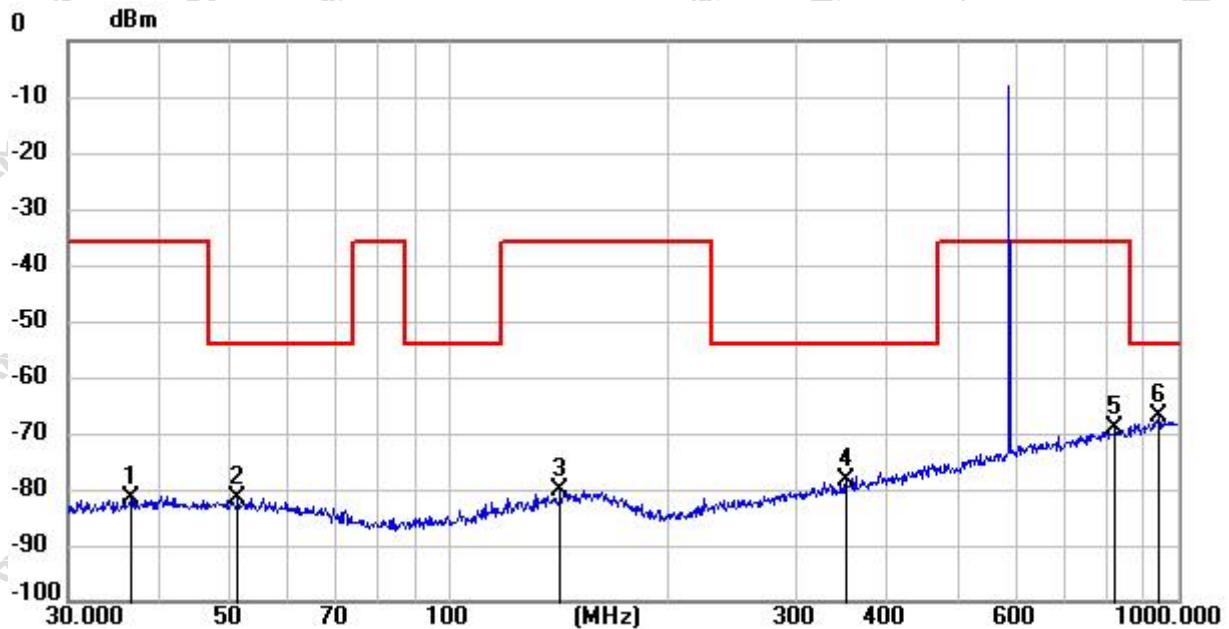
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Horizontal
Temperature	24.8 °C	Humidity	52.1%
Test Mode:	CHA-Tx(575.600MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	36.7662	-68.59	-13.02	-81.61	-36.00	-45.61	QP
2	56.0007	-67.25	-13.39	-80.64	-54.00	-26.64	QP
3	147.4036	-67.97	-11.65	-79.62	-36.00	-43.62	QP
4	378.5843	-66.96	-9.57	-76.53	-54.00	-22.53	QP
5	763.3757	-68.36	-1.59	-69.95	-36.00	-33.95	QP
6*	929.0082	-67.92	0.38	-67.54	-54.00	-13.54	QP

Emission Level= Read Level+ Correct Factor

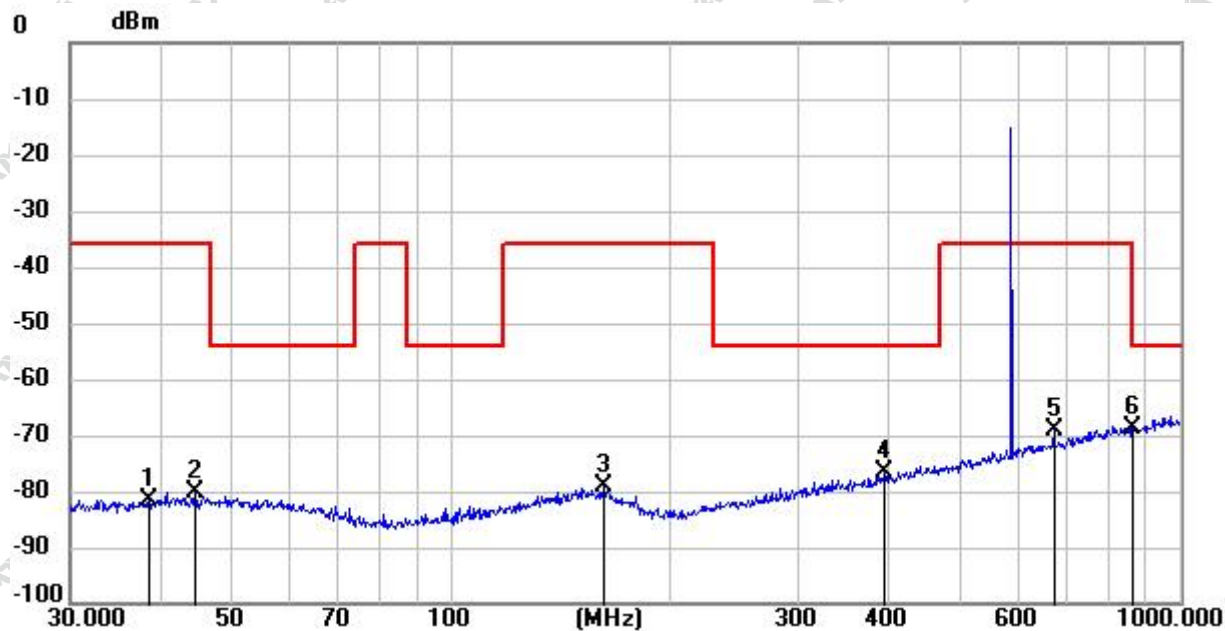
EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Horizontal
Temperature	24.8°C	Humidity	52.1%
Test Mode:	CHB-Tx(586.600MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	38.4809	-68.72	-12.76	-81.48	-36.00	-45.48	QP
2	44.4308	-67.22	-12.94	-80.16	-36.00	-44.16	QP
3	162.0414	-67.36	-11.66	-79.02	-36.00	-43.02	QP
4	393.4723	-67.51	-9.22	-76.73	-54.00	-22.73	QP
5	672.8444	-65.98	-3.27	-69.25	-36.00	-33.25	QP
6*	863.0562	-68.14	-0.58	-68.72	-54.00	-14.72	QP

Emission Level= Read Level+ Correct Factor

EUT:	F30	Model Name:	F30
Pressure:	1010 hPa	Phase:	Vertical
Temperature	24.8°C	Humidity	52.1%
Test Mode:	CHB-Tx(586.600MHz)	Test Voltage:	DC 3.7V by Battery



No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	36.5092	-68.50	-13.07	-81.57	-36.00	-45.57	QP
2	51.3005	-68.58	-13.15	-81.73	-54.00	-27.73	QP
3	142.3243	-68.07	-12.04	-80.11	-36.00	-44.11	QP
4	350.4768	-68.21	-10.22	-78.43	-54.00	-24.43	QP
5	821.7103	-68.00	-1.01	-69.01	-36.00	-33.01	QP
6*	938.8326	-67.44	0.51	-66.93	-54.00	-12.93	QP

Emission Level= Read Level+ Correct Factor

4. EUT TEST PHOTOS

Note: Refer to the attached test photos

5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Note: Refer to the attached exterior and interior photos



*****THE END*****