DYNAMIC FREQUENCY SELECTION DFS Test Report

APPLICANT : Xiaomi Communications Co., Ltd.

EQUIPMENT: Mobile Phone

BRAND NAME : XIAOMI
MODEL NAME : 2211133G
FCC ID : 2AFZZ133G

STANDARD : FCC Part 15 Subpart E

CLASSIFICATION: (NII) Unlicensed National Information Infrastructure

TEST DATE(S) : Oct. 12, 2022 ~ Oct. 20, 2022

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

JasonJia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 1 of 25
Report Issued Date : Nov. 11, 2022

Report No. : FZ291702

Report Version : Rev. 01

TABLE OF CONTENTS

RE	VISIO	N HISTORY	3
SU	MMAF	RY OF DYNAMIC FREQUENCY SELECTION TEST	4
1	GENI	ERAL DESCRIPTION	5
	1.1. 1.2. 1.3. 1.4. 1.5. 1.6. 1.7.	Applicant	5 6 7 7
2	REQ	JIREMENTS AND PARAMETERS FOR DFS TEST	8
	2.1.2.2.2.3.2.4.2.5.	Summary of Dynamic Frequency Selection Test	9 10
3	CALI	BRATION SETUP AND DFS TEST RESULTS	12
	3.1. 3.2	Calibration of Radar Waveform	
4	VERI	FY CHANNEL PUNCTURING	21
	4.1 4.2	According to KDB inquiry for DFS test cases	
5	LIST	OF MEASURING EQUIPMENT	33
ΑP	PEND	IX A. SETUP PHOTOGRAPHS	

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

: 2 of 25 Page Number Report Issued Date: Nov. 11, 2022 Report Version

Report No. : FZ291702

: Rev. 01

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FZ291702	Rev. 01	Initial issue of report	Nov. 11, 2022

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 3 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

SUMMARY OF DYNAMIC FREQUENCY SELECTION TEST

UNII	Bandwidth and Channel	Description	Measured	Limit	Result
		Channel Move Time	652.422ms	10 sec	Pass
UNII Band 2A 5260-5320MHz	160MHz (CH50) 5250MHz	Channel Closing Transmission time	<200ms + 6.8ms (aggregate)	200 ms + aggregate of 60 ms over remaining 10 s period	Pass
		Non-Occupancy Period and Client Beacon Test	No transmission or Beacons occurred	30 minutes	Pass
		Channel Move Time	523.217ms	10 sec	Pass
UNII Band 2C 5500-5720MHz	160MHz (CH114) 5570MHz	Channel Closing Transmission time	<200ms + 3.6ms (aggregate)	200 ms + aggregate of 60 ms over remaining 10 s period	Pass
		Non-Occupancy Period and Client Beacon Test	No transmission or Beacons occurred	30 minutes	Pass

Note: Since the product is client without radar detection function, only Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period Test are required to be performed.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 4 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

1 General Description

1.1. Applicant

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2. Manufacturer

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3. Feature of Equipment Under Test

Product Feature				
Equipment	Mobile Phone			
Brand Name	XIAOMI			
Model Name	2211133G			
FCC ID	2AFZZ133G			
IMEI Code	866917060040332/866917060040340			
HW Version	P2			
SW Version	MIUI 14			
EUT Stage	Identical Prototype			

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Sporton International Inc. (Kunshan)Page NumberTEL: +86-512-57900158Report Issued

FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 5 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

1.4. Product Specification of Equipment Under Test

Product Specification subjective to this standard					
DFS Function	Client without radar detection function				
Tx/Rx Channel Frequency Range	5260 MHz ~ 5320 MHz				
TATEL CHAINCE Frequency Range	5500 MHz ~ 5720 MHz				
	802.11a				
	802.11n HT20/HT40				
EUT support WLAN function	802.11ac VHT20/VHT40/VHT80/VHT160				
	802.11ax HE20/HE40/HE80/HE160				
	802.11be EHT20/EHT40/EHT80/EHT160				
Antenna Type	PIFA Antenna				
	<ant. 1="">:</ant.>				
	5260 MHz ~ 5320 MHz: -2.5 dBi				
Antenna Gain	5500 MHz ~ 5720 MHz: -3.0 dBi				
Antenna Gam	<ant. 2=""> :</ant.>				
	5260 MHz ~ 5320 MHz: -3.0 dBi				
	5500 MHz ~ 5720 MHz: -2.0 dBi				
	802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)				
	802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)				
Type of Modulation	802.11ax: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM /				
	1024QAM)				
	802.11be: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM /				
	1024QAM / 4096QAM)				

Note: The device support channel puncturing function as below,

Puncturing 20MHz modes

BWs/channels		Тог	nes			Ind	ex		For test modes configure
80MHz/ch42	484			242	65	65		64	3
80MHz/ch58	484			242	66		61		2
80MHz/ch106	484			242	65			64	3
80MHz/ch155	484			242	65			63	3
160MHz/ch50	242-Left	484-	Left	996-Right	62-Left	66-L	eft	67-Right	0
160MHz/ch50	996-Left	484-F	Right	242-Right	67-Left	65-Ri	ght	63-Right	8
160MHz/ch114	996-Left	484-F	Right	242-Right	67-Left	65-Ri	ght	63-Right	8

Puncturing 40MHz modes

BWs/channels	Tones		els Tones Index		For test modes configure
160MHz/ch50	484-Left	996-Right	65-Left	67-Right	2
160MHz/ch50	996-Left	484-Right	67-Left	66-Right	3
160MHz/ch114	996-Left	484-Right	67-Left	66-Right	3

Only the worse cases are shown in this report.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 6 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

1.5. Modification of EUT

No modifications are made to the EUT during all test items.

1.6. Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)				
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone				
Test Site Location	Jiangsu Province 215300 People's Republic of China				
rest one Location	TEL: +86-512-57900158				
	FAX: +86-512-57900958				
	Sporton Sito No	ECC Designation No.	FCC Test Firm		
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.		
	DFS01-KS	CN1257	314309		

1.7. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
- FCC KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

1.8. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	HW / FW Version	Power Cord
1.	WLAN AP	Qualcomm	N/A	N/A	N/A	Shielded, 1.8 m
						AC I/P:
2.	. Notebook Lenovo Edge E335 PPD-AR5B95	1	Ed. 5005		N/A	Unshielded, 1.2 m
۷.		Euge E335	PPD-AKOB90	IN/A	DC O/P:	
			Shielded, 1.8 m			

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

: 7 of 25 Page Number Report Issued Date: Nov. 11, 2022 Report Version

: Rev. 01

2 Requirements and Parameters for DFS Test

2.1. Summary of Dynamic Frequency Selection Test

Bandwidth and Channel	Test Items	Limit
	Channel Move Time	10 sec
160MHz (CH50) 5250MHz	Channel Closing Transmission time	200 ms + aggregate of 60 ms over remaining 10 s period
	Non-Occupancy Period and Client Beacon Test	30 minutes
	Channel Move Time	10 sec
160MHz (CH114) 5570MHz	Channel Closing Transmission time	200 ms + aggregate of 60 ms over remaining 10 s period
	Non-Occupancy Period and Client Beacon Test	30 minutes

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 8 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

2.2. Applicability of DFS Requirements

EUT is client and operates as client without radar detection function.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

	Operational Mode				
Requirement	Master	Client Without Radar Detection	Client With Radar Detection		
Non-Occupancy Period	Yes	Not required	Yes		
DFS Detection Threshold	Yes	Not required	Yes		
Channel Availability Check Time	Yes	Not required	Not required		
U-NII Detection Bandwidth	Yes	Not required	Yes		

Table 2: Applicability of DFS requirements during normal operation

	Operational Mode				
Requirement	Master	Client Without Radar Detection	Client With Radar Detection		
DFS Detection Threshold	Yes	Not required	Yes		
Channel Closing Transmission Time	Yes	Yes	Yes		
Channel Move Time	Yes	Yes	Yes		
U-NII Detection Bandwidth	Yes	Not required	Yes		
Client Beacon Test	N/A	Yes	Yes		

	Operation	nal Mode	
Additional requirements for devices with multiple bandwidth modes	Master or Client With Radar Detection	Client Without Radar Detection	
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required	
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link	
All other tests	Any single BW mode	Not required	

Note

Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

Page Number : 9 of 25 Report Issued Date: Nov. 11, 2022

Report No. : FZ291702

Report Version : Rev. 01

2.3. Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm

Report No. : FZ291702

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

The radar *Detection Threshold*, lowest antenna gain is the parameter of Interference *radar DFS* detection threshold, The Interference *Detection Threshold* is the (-62dBm) + (0) [dBi]+ 1 dB= -61 dBm.

2.4. DFS Response requirement values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over
	remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the 99% power bandwidth
	See Note 3.

Note 1: The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the Burst.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar *Burst* generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate *Channel* changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

 Sporton International Inc. (Kunshan)
 Page Number
 : 10 of 25

 TEL: +86-512-57900158
 Report Issued Date
 : Nov. 11, 2022

 FAX: +86-512-57900958
 Report Version
 : Rev. 01

FCC ID: 2AFZZ133G

2.5. Short Pulse Radar Test Waveforms

As the EUT is a Client Device with no Radar Detection, only one type radar pulse is required for the testing. Radar Pulse type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time.

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	60%	30
1	1	Test A Test B	Roundup $ \left\{ $	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggrega	Aggregate (Radar Types 1-4)			80%	120

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a

Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A

A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.

If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 11 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

Calibration Setup and DFS Test Results

Calibration of Radar Waveform

3.1.1 **Radar Waveform Calibration Procedure**

The Interference Radar Detection Threshold Level is (-62dBm) + (0) [dBi]+ 1 dB= -61dBm that had been taken into account the output power range and antenna gain. The following equipment setup was used to calibrate the radiated Radar Waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) at the frequency of the Radar Waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz to measure the type 0 radar waveform. The spectrum analyzer had offset to compensate and RF cable loss. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was (-62dBm) + (0) [dBi]+ 1 dB= -61 dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

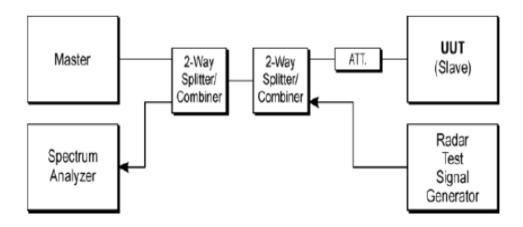
Page Number : 12 of 25 Report Issued Date: Nov. 11, 2022

Report No.: FZ291702

Report Version : Rev. 01

3.1.2 Test Setup

Conducted Test Setup

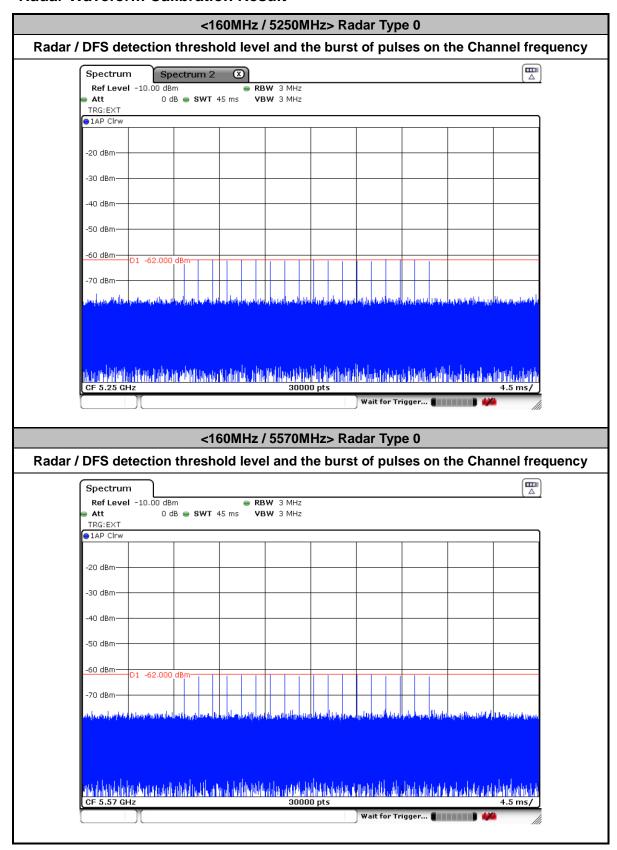


3.1.3 Calibration Deviation

There is no deviation with the original standard.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 13 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

3.1.4 Radar Waveform Calibration Result



Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 14 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

3.2 In-Service Monitoring: Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

3.2.1 Limit of In-Service Monitoring

The EUT has In-Service Monitoring function to continuously monitor the radar signals, If radar is detected, it must leave the channel (Shutdown). The Channel Move Time to cease all transmissions on the current Channel upon detection of a Radar Waveform above the DFS Detection Threshold within 10 sec. The total duration of *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate *Channel* changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Non-Occupancy Period time is 30 minute during which a Channel will not be utilized after a Radar Waveform is detected on that Channel. The non-associated Client Beacon Test is during the 30 minutes observation time. The EUT should not make any transmissions in the DFS band after EUT power up.

Sporton International Inc. (Kunshan) TEL: +86-512-57900158

FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 15 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

3.2.2 Test Procedures

1. The radar pulse generator is setup to provide a pulse at frequency that the Master and Client are operating. A type 0 radar pulse with a 1us pulse width and a 1428 us PRI is used for the testing.

Report No. : FZ291702

- 2. The vector signal generator is adjusted to provide the radar burst (18 pulses) at a level of approximately -62dBm at the antenna of the Master device.
- 3. A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4. A U-NII device operating as a Client Device will associate with the Master at Channel. The MPEG file "TestFile.mpg" specified by the FCC is streamed from the "file computer" through the Master to the Client Device and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5. When a radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. At time T0 the Radar Waveform generator sends a Burst of pulse of the radar waveform at Detection Threshold + 1dB.
- 6. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). One 12 seconds plot is reported for the Short Pulse Radar Types 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7. Measurement of the aggregate duration of the Channel Closing Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.4ms)= S (12000ms) / B (30000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.4 ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8. Measure the EUT for more than 30 minutes following the channel move time to verify that no transmissions or beacons occur on this Channel.

9. The test frequency, bandwidth and data rate as following table:

BW / Channel	Test Data Rate
160MHz / 5250MHz	MCS0
160MHz / 5570MHz	MCS0

 Sporton International Inc. (Kunshan)
 Page Number
 : 16 of 25

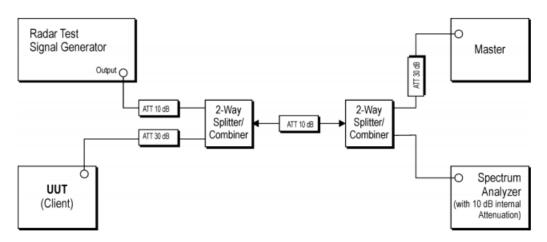
 TEL: +86-512-57900158
 Report Issued Date
 : Nov. 11, 2022

 FAX: +86-512-57900958
 Report Version
 : Rev. 01

FCC ID: 2AFZZ133G

3.2.3 Test Setup

UUT is a Client without Radar detection and Radar Test Waveforms are injected into the Master. Conducted Test Setup



3.2.4 Test Deviation

There is no deviation with the original standard.

3.2.5 Result of Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test

Test Mode :	Client without radar detection	Temperature :	24.1°C
Test Engineer :	Han Lei	Relative Humidity :	46%

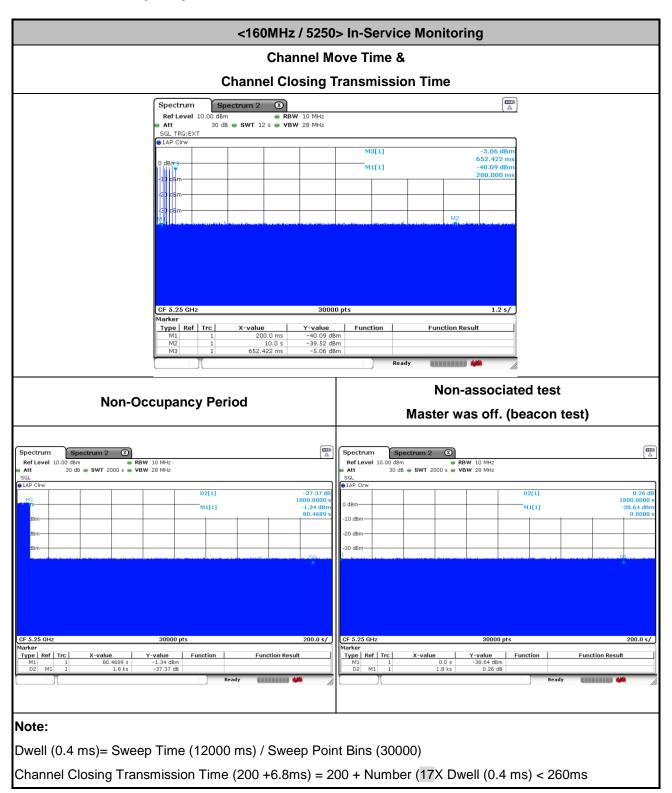
BW / Channel	Test Item	Test Result	Limit	Pass/Fail
160MHz	Channel Move Time	652.422 ms	< 10s	Pass
	Channel Closing Transmission Time	200ms + 6.8 ms	< 260ms	Pass
(5250MHz)	Non-Occupancy Period	≥ 30	≥ 30 min	Pass
4C0M11=	Channel Move Time	523.217 ms	< 10s	Pass
160MHz	Channel Closing Transmission Time	200ms + 3.6 ms	< 260ms	Pass
(5570MHz)	Non-Occupancy Period	≥ 30	≥ 30 min	Pass

Note: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 17 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

3.2.6 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test Plots



Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 18 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

<160MHz / 5570> In-Service Monitoring **Channel Move Time & Channel Closing Transmission Time** Spectrum 2 Ref Level 10.00 dBm Att 1AP Clrw M3[1] 523.217 m -40.46 dBn 200.000 m M1[1] 30000 pts Non-associated test **Non-Occupancy Period** Master was off. (beacon test) Spectrum 2

Ref Level 10.00 dBm

Att 30 dB • SWT 200 Spectrum 2 X D2[1] D2[1] М1Г1Т -1.91 dBm 43.6015 M1[1] Type Ref Trc Function Result Function Result

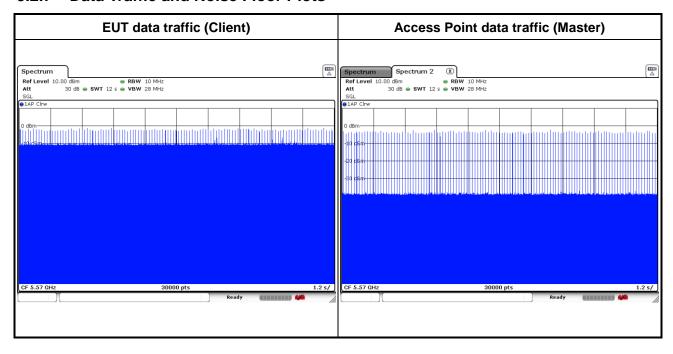
Note:

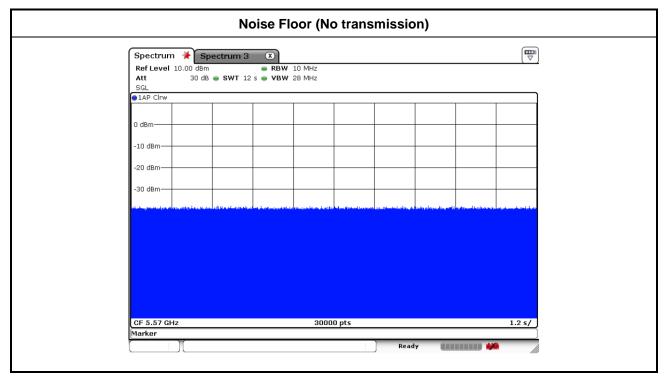
Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)

Channel Closing Transmission Time (200 +3.6ms) = 200 + Number (9X Dwell (0.4 ms) < 260ms

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 19 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

3.2.7 Data Traffic and Noise Floor Plots





TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 20 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

4 Verify Channel Puncturing

4.1 According to KDB inquiry for DFS test cases

- a. Check 99% OBW of non-punctured channel not falling into punctured channel.
- b. DUT transmitting by using FTM (Factory Test Mode) control and the BW should be within the non-punctured channels, and punctured regions should meet -27 dBm/MHz EIRP AVG.

4.1.1 Combinations of channel puncturing

80 MHz punctured by 20MHz; 160 MHz punctured by 20MHz, 160 MHz punctured by 40MHz

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 21 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

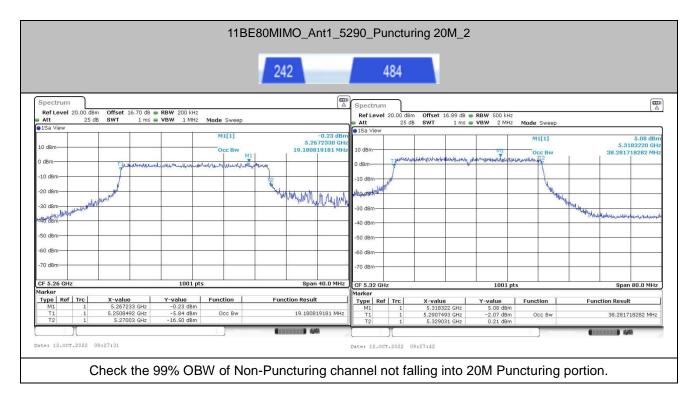
4.2 Test results

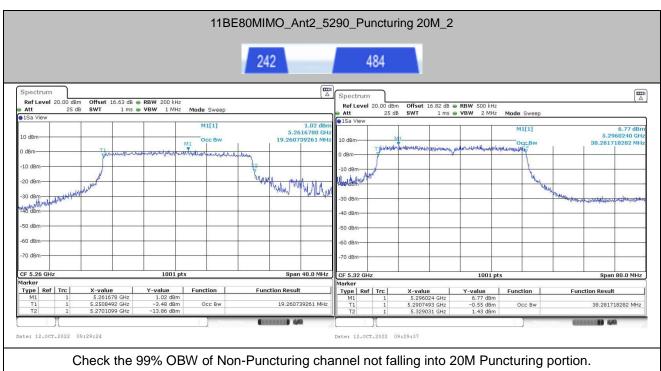
4.2.1 Non-Punctured Channel 99% Occupied Bandwidth Check

Test Mode	Antenna	Freq (MHz)	Puncturing	configure	OCB [MHz]	FL [MHz]	FH [MHz]
	Ant1	5000	Duranturia e 20M	2	19.181	5250.8492	5270.0300
	Anti	5290	Puncturing 20M	2	38.282	5290.7493	5329.0310
	Ant2	5290	Puncturing 20M	2	19.261	5250.8492	5270.1099
11BE80MIMO	AIILZ	5290	Pulicturing 2010	2	38.282	5290.7493	5329.0310
TIBEOUVIIIVIO	Ant1	5530	Puncturing 20M	3	19.381	5549.7303	5569.1109
	Anti	5550	Pulicturing 2010	3	38.362	5490.8891	5529.2507
	Ant2	5530	Puncturing 20M	3	19.101	5549.9700	5569.0709
	AIILZ	5550	Pulicturing 2010	3	38.521	5490.7293	5529.2507
	A = 44	5250	Dun aturia a 40M	3	38.521	5290.5794	5329.1009
	Ant1	5250	Puncturing 40M		78.482	5170.9790	5249.4605
	A = 40	5250 Puncturir	Durantania a 40M	3	38.282	5290.7393	5329.0210
11BE160MIMO	Ant2		Puncturing 40M		78.002	5171.1389	5249.1409
TIBE TOUIVIIIVIO	A n+1		Duncturing 40M	Puncturing 40M 3	38.282	5290.7493	5329.0310
	Ant1	5570	Puncturing 40M	3	78.002	5491.1389	5569.1409
	A == 40	5570	Dun aturin a 40M	2	38.282	5290.7493	5329.0310
	Ant2	5570	Puncturing 40M	3	78.162	5490.9790	5569.1409
	Ant1	5250	Puncturing 20M	8	140.34	5170.3996	5310.7393
11BE160MIMO	Ant2	5250	Puncturing 20M	8	140.02	5170.3996	5310.4196
I I DE TOUIVIIIVIO	Ant1	5570	Puncturing 20M	8	140.02	5490.3996	5630.4196
	Ant2	5570	Puncturing 20M	8	140.659	5490.0799	5630.7393

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 22 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

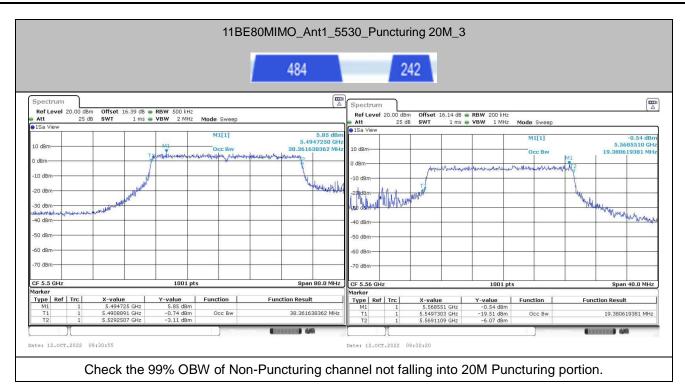
Test Graphs:

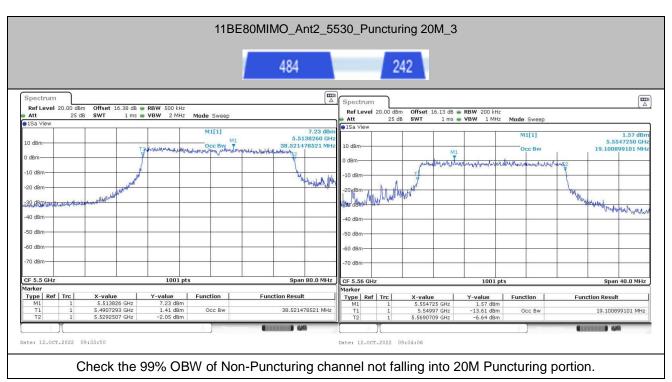




TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 23 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01







Page Number : 24 of 25 Report Issued Date: Nov. 11, 2022 Report Version : Rev. 01

1001 pts

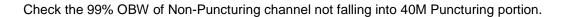
Function

CF 5.19 GH

Type | Ref | Trc

Date: 12.0CT.2022 09:50:26



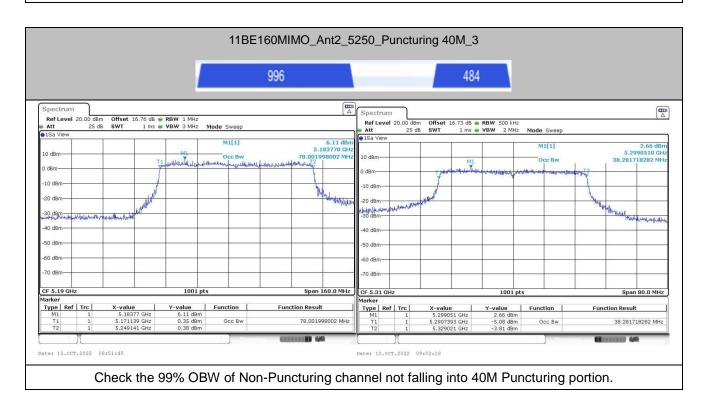


CF 5.31 G

Date: 12.0CT.2022 09:50:58

Span 160.0 MHz

Function Result

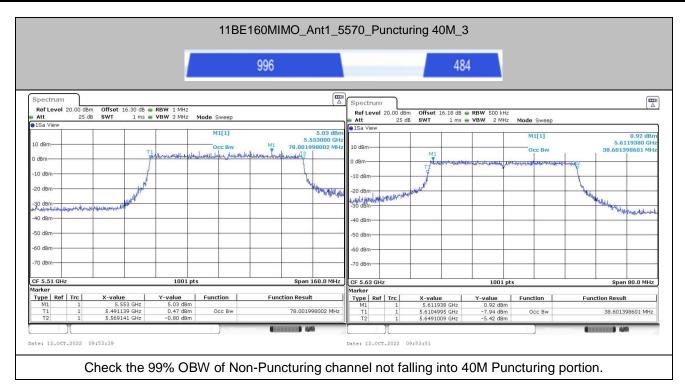


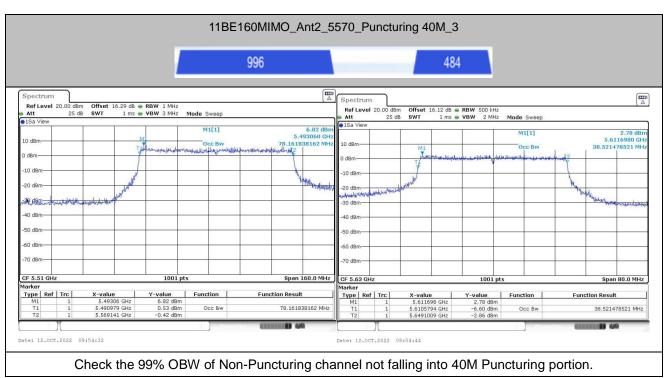
TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 25 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

Occ Bw

38.521478521 MHz



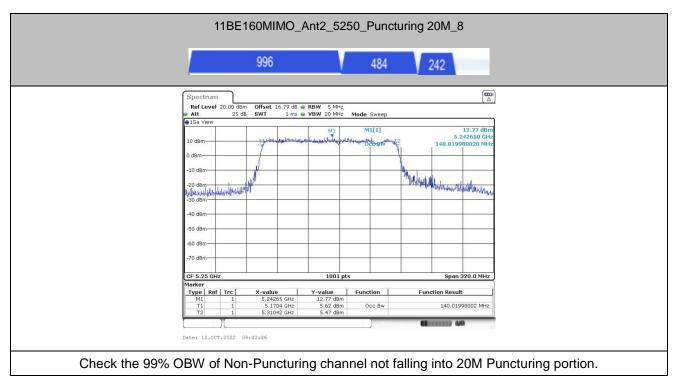




Page Number : 26 of 25 Report Issued Date: Nov. 11, 2022 Report Version : Rev. 01

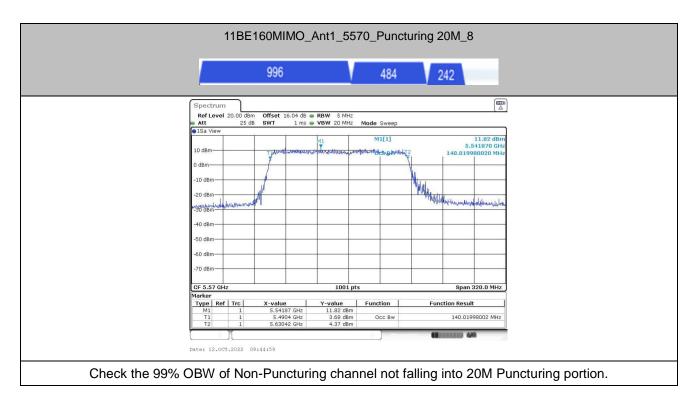


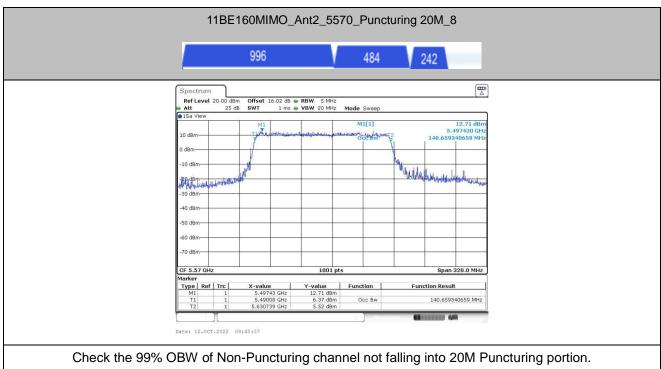




Page Number : 27 of 25 Report Issued Date: Nov. 11, 2022 Report Version : Rev. 01







Page Number : 28 of 25 Report Issued Date: Nov. 11, 2022 Report Version : Rev. 01

4.2.2 Punctured Channel E.I.R.P Check

Check the punctured regions meet -27 dBm/MHz EIRP AVG.

Mode	Frequency	EIRP (dBm)		
	(MHz)	Z) Ant.1	Ant.2	
802.11be EHT80-20M	5280	-33.17	-30.19	
802.11be EHT80-20M	5540	-31.83	-28.83	
802.11be EHT160-20M	5320	-39.47	-33.91	
802.11be EHT160-20M	5640	-37.35	-31.60	
802.11be EHT160-40M	5270	-38.95	-40.00	
802.11be EHT160-40M	5590	-38.78	-34.06	

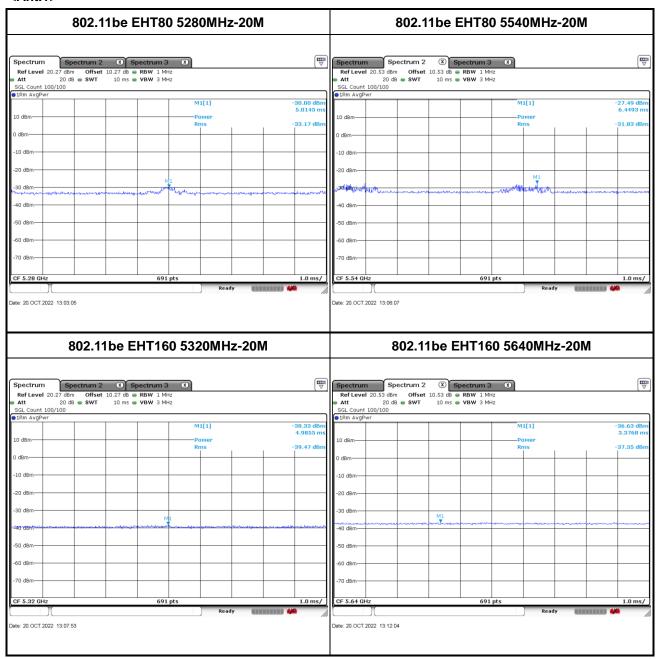
Note: The Antenna Gain is compensated in the graph.

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 29 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

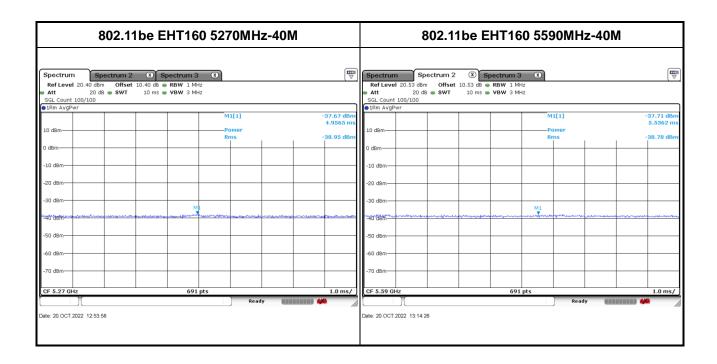
Test Graphs:

<Ant.1>

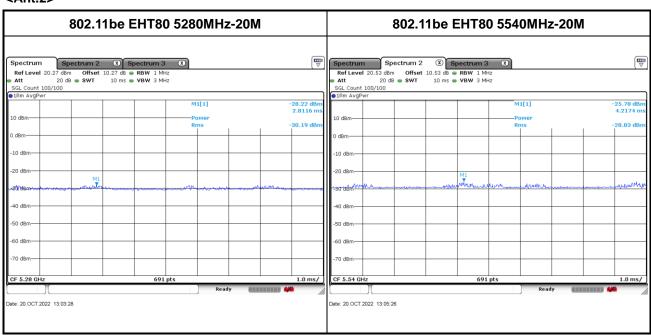


TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G Page Number : 30 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01





<Ant.2>



TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

Page Number Report Issued Date: Nov. 11, 2022 Report Version : Rev. 01





Page Number : 32 of 25
Report Issued Date : Nov. 11, 2022
Report Version : Rev. 01

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark				
Spectrum	R&S	FSV7	101632	10Hz~7GHz	Jan. 06, 2022	Oct. 12, 2022~	Jan. 05, 2023	DFS				
Analyzer	Ras	1377	101032	10112~7 G112	Jan. 00, 2022	Oct. 20, 2022	Jan. 05, 2025	(DFS01-KS)				
Signal	KEYSIGHT	5182B	MY56200417	9KHz~6GHz	May 24, 2022	Oct. 12, 2022~	May 23, 2023	DFS				
Generator	KETSIGITI	/5182BX07	/MY59360210	9K112~0G112	May 24, 2022	Oct. 20, 2022	Iviay 23, 2023	(DFS01-KS)				
Camabinan	MTJ	NAT 1744 4 NA	NI/A	0.5GHz~18GHz	0.5GHz~18GHz	N/A 0.5GHz~18GHz	0.5011- 40011-	0.5011- 40011-	NCD	Oct. 12, 2022~	NCD	DFS
Combiner	Cooperation	MTJ7114-M	IN/A				NCR	Oct. 20, 2022	NCR	(DFS01-KS)		

NCR: No Calibration Required

----- THE END -----

Sporton International Inc. (Kunshan)

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: 2AFZZ133G

Page Number : 33 of 25 Report Issued Date: Nov. 11, 2022

Report No. : FZ291702

Report Version : Rev. 01