JAPAN RADIO TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures given in MIC Notice No. 88 Annex 22.

Applicant	:	ShenZhen YuDaLeGou Internet Technology Co., Ltd.
Address	:	Room 505, Building 1, Nanyou 4th Industrial zone, Nanshan Avenue, Nanshan district, Shenzhen
Manufacturer	:	Huizhou Chezhipin Technology Co.,Ltd.
Address	:	4th Floor, Huate Industrial Park, Huiyang District, Huizhou City
E.U.T.	:	TPMS
Model No.	:	GG-240, GG-200, GG-110 (For model difference refer to section 1.1)
Brand Name	:	GreenGee
Measurement Standard	:	Article 2 Paragraph 1 of Certification Ordinance Item 8
Date of Receiver	:	September 26, 2019
Date of Test	:	September 27, 2019 to October 14, 2019
Date of Report	:	October 15, 2019

This Test Report is Issued Under the Authority of:

Prepared by	Approved & Authorized Signer
Evan Yang / Engineer	Iori Fan / Authorized Signatory

This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Dongguan Nore Testing Center Co., Ltd. The test results referenced from this report are relevant only to the sample tested.

TEL: +86-769-22022444 FAX: +86-769-22022799 Web: www.ntc-c.com
Address: Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong, China

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REVISION HISTORY OF THIS TEST REPORT

Report Number	Description	Issued Date
NTC1909293EV00	Initial Issue	2019-10-15

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name	:	TPMS
Model Name	:	GG-240, GG-200, GG-110
Model difference	:	We hereby state that these models are identical in interior structure, electrical circuits and components, just model name is different. Therefore only model GG-240 is for tests.
Power Supply	:	DC 3.0V (From built-in battery)
Test Voltage	:	DC 3.0V (Normal Voltage) DC 2.7V (Low Voltage -10% of Normal Voltage) DC 3.3V (High Voltage +10% of Normal Voltage) Only the worst case was recorded in the report.
Software Version	:	0.01
Hardware Version	:	0.01

Technical Specification:

Frequency Range	:	315MHz
Modulation Mode	:	FSK
Number of Channel	:	1
Antenna Type	:	Integral Antenna
Antenna Gain	:	0.5dBi (Declaration by manufacturer)

1.2 Test Facility and Location

Site Description

EMC Lab : Listed by CNAS, August 13, 2018
The certificate is valid until August 13, 2024
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01
The Certificate Registration Number is L5795.

Listed by A2LA, November 01, 2017
The certificate is valid until December 31, 2019
The Laboratory has been assessed and proved to be in compliance with ISO17025
The Certificate Registration Number is 4429.01

Listed by FCC, November 06, 2017
The Designation Number is CN1214
Test Firm Registration Number: 907417

Listed by Industry Canada, June 08, 2017
The Certificate Registration Number. Is 46405-9743

Name of Firm : Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Site Location : Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong, China

1.3 Summary of Test Results

SUMMARY OF TEST RESULTS		
Section (ARIB STD-T93)	**Description of Test**	**Test result**
Article 2-1, item 8	Frequency tolerance	Compliant
Article 2-1, item 8	Assigned Frequency or Designated Frequency	Compliant
Article 2-1, item 8	Antenna Power Tolerance	Compliant
Article 2-1, item 8	Permissible value for occupied bandwidth	Compliant
Article 2-1, item 8	Unwanted Emission Intensity	Compliant
Article 2-1, item 8	Transmission Time	Compliant

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes and configuration

The EUT has been tested under continuous operating condition. Test program used to control the EUT staying in continuous transmitting mode, and modulation type FSK and all data rate were tested, but only the worst case data is shown in this report.

2.4 Environmental Conditions

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

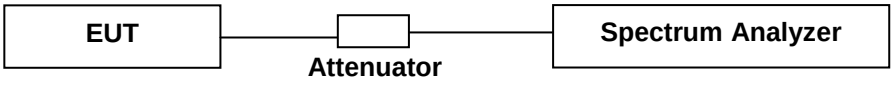
- Temperature: 0~70℃
- Humidity: 5~90%
- Atmospheric pressure: 86-106 kPa

2.5 Measurement Uncertainty (95% confidence levels)

Uncertainty for Conduction Spurious emission Measurement	:	2.01dB
Uncertainty for Output power Measurement	:	0.84dB
Uncertainty for Power density Measurement	:	1.76dB
Uncertainty for Frequency range Measurement	:	1*10-9
Uncertainty for Bandwidth Measurement	:	1*10-9

3. FREQUENCY TOLERANCE AND ASSIGNED FREQUENCY OR DESIGNATED FREQUENCY

3.1 Test SET-UP (Block Diagram of Configuration)



3.2 Test Procedures

- **Connect EUT antenna terminal to the Spectrum Analyzer.**
- **Set Spectrum Analyzer as below:**

Test Frequency	:	315MHz
RBW	:	1kHz
VBW	:	3kHz
Span	:	100kHz
Sweep Time	:	Auto
Detector Mode	:	Peak
Display Mode	:	Max Hold

3.3 Limit

Standard	Item	Limit
Article 2-1 Item 8	Tolerance of Frequency	more than 312 MHz and 315.25 MHz or less

3.4 Measurement Results

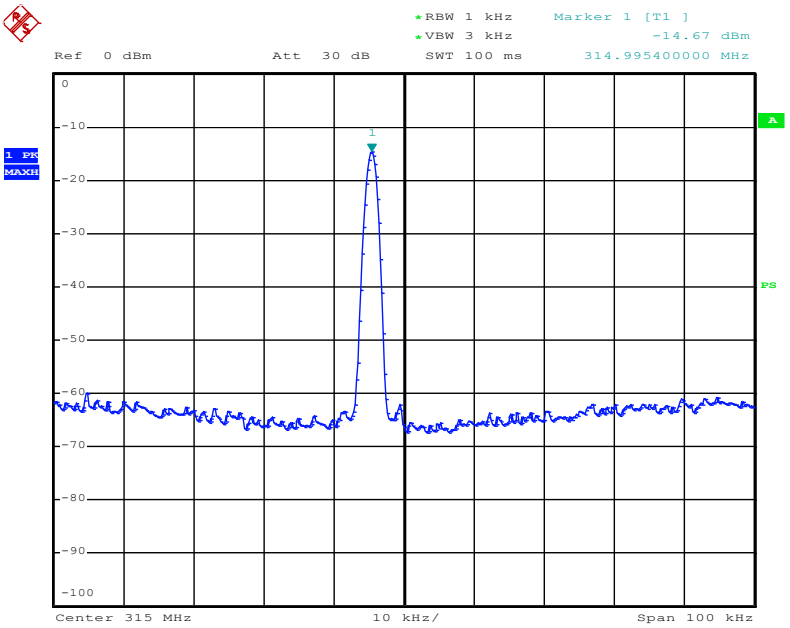
Please refer to following tables and plots.

Temperature :	24 ℃	Humidity :	50 %
Test by:	Lee	Test Date :	October 13, 2019
Test Result:	PASS		

Test Frequency (MHz)	Test Voltage	Test Result (MHz)	Limit
315	DC 3.0V (Nom)	314.9954	>312 MHz, < 315.25 MHz
	DC 2.7V (Low)	314.9955	>312 MHz, < 315.25 MHz
	DC 3.3V(High)	314.9953	>312 MHz, < 315.25 MHz

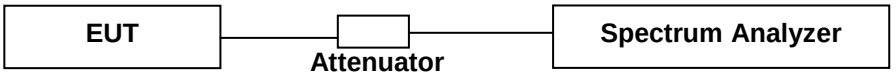
Note: The EUT was programmed in un-modulation function.

Attach Normal Voltages: DC 3.0V Test Plots



4. OCCUPIED BANDWIDTH (99%)

4.1 Test SET-UP (Block Diagram of Configuration)



4.2 Measurement Procedure

- **Connect EUT antenna terminal to the Spectrum Analyzer.**
- **Set Spectrum Analyzer as below:**

Test Frequency	:	315MHz
RBW	:	10kHz
VBW	:	30kHz
Span	:	500kHz
Sweep Time	:	Auto
Detector Mode	:	Peak
Display Mode	:	Max Hold
OBW	:	99%

4.3 Limit

Standard	Limit
Article 2-1 Item 8	1MHz

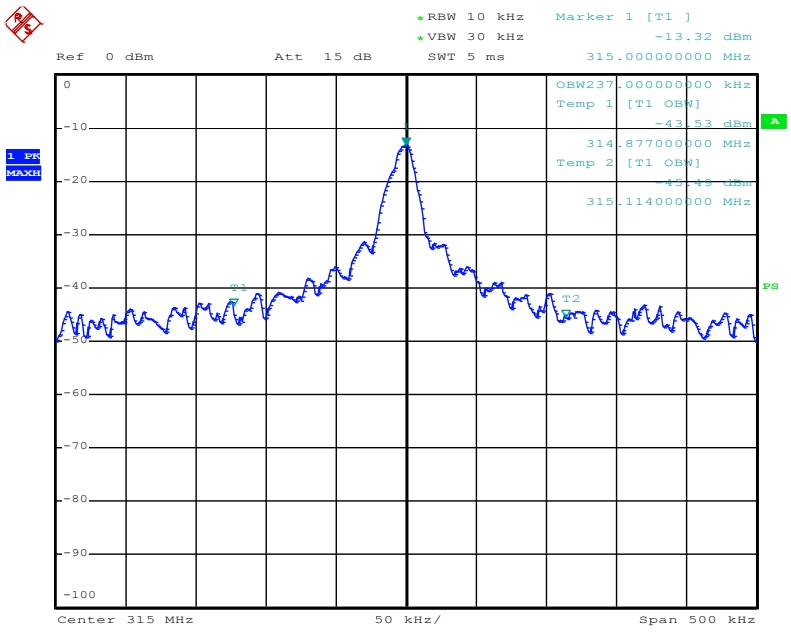
4.4 Measurement Result

Please refer to following tables and plots.

Temperature:	24 ℃	Humidity:	50 %
Test by:	Lee	Test Date:	October 13, 2019
Test Result:	PASS		

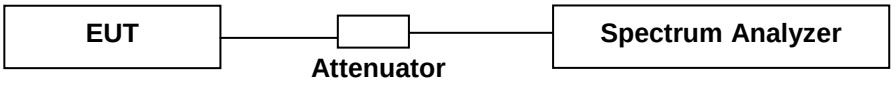
Test Frequency (MHz)	Test Voltage	Occupied Bandwidth (MHz)	Limit (MHz)
315	DC 3.0V (Nom)	0.237	< 1
	DC 2.7V (Low)	0.237	< 1
	DC 3.3V (High)	0.237	< 1

Attach Normal Voltages: DC 3.0V Test Plots



5. UNWANTED EMISSION INTENSITY

5.1 Test SET-UP (Block Diagram of Configuration)



5.2 Measurement Procedure

- **Connect EUT antenna terminal to the Spectrum Analyzer.**
- **Set Spectrum Analyzer as below:**

Frequency Band	:	30-312MHz; 315.25-1000MHz; 1000-4000MHz
RBW	:	100kHz for below 1GHz 1MHz for above 1GHz
VBW	:	300kHz for below 1GHz 3MHz for above 1GHz
Sweep Time	:	Auto
Detector Mode	:	Peak
Display Mode	:	Max Hold

5.3 Limit

Standard	Item	Frequency band	Limit
Article 2-1 Item 8	TX Spurious Emission	Below 1GHz	250nW / -36dBm
		Above 1GHz	1uW / -30dBm

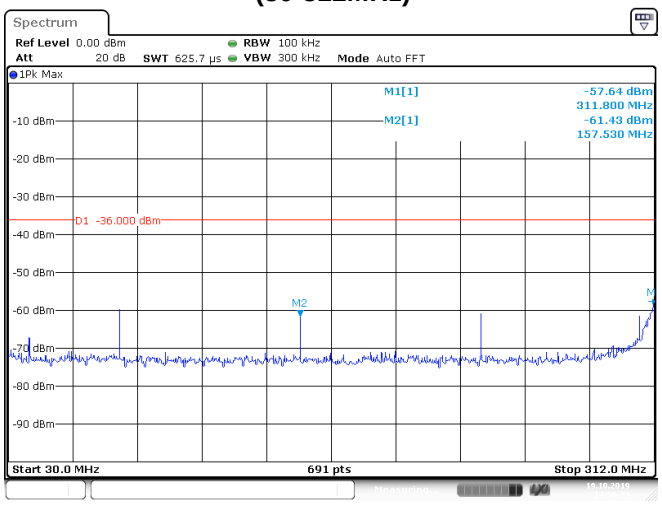
5.4 Measurement Results

Please refer to following table and plots

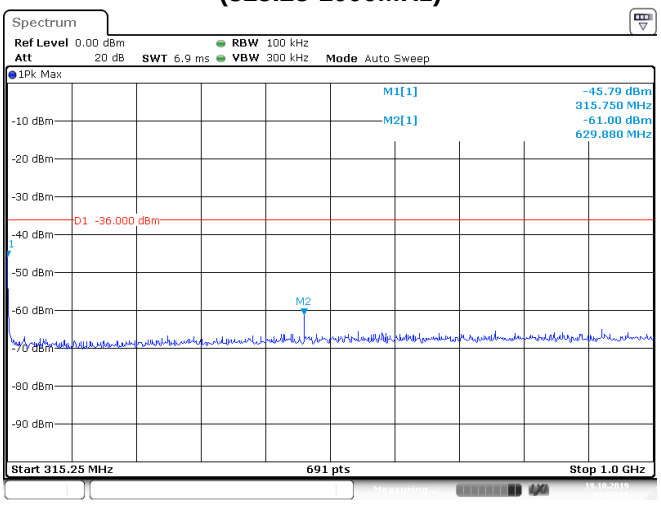
Temperature:	24 ℃	Humidity:	50 %
Test by:	Lee	Test Date:	October 13, 2019
Test Voltage	DC 3.0V	Test Result:	PASS

Attach Normal Voltages: DC 3.0V test Plots

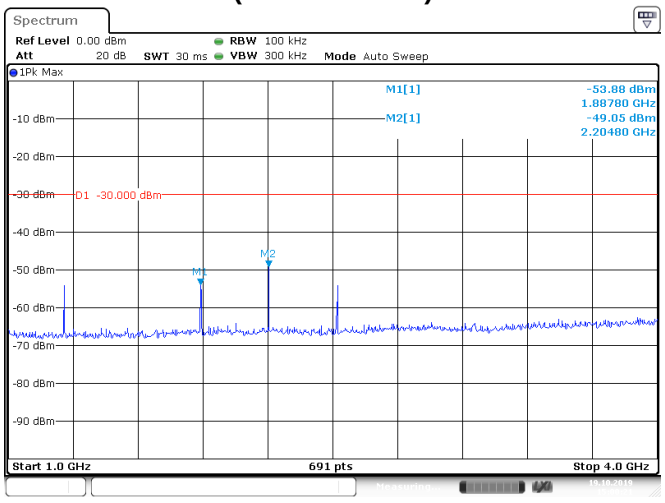
(30-312MHz)



(315.25-1000MHz)



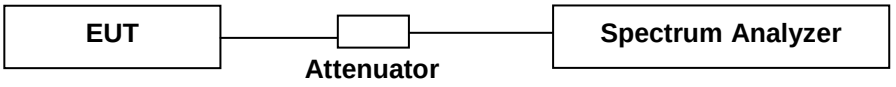
(1000-4000MHz)



Note: All the modulation modes of the normal voltage and ±10% of the normal voltage were tested, only the Normal Voltage test data were and the worst case antenna port recorded.

6. ANTENNA POWER AND TOLERANCES

6.1 Test SET-UP (Block Diagram of Configuration)



6.2 Measurement Procedure

- **Search Frequency of Peak Power and Measure of Antenna Power, Set Spectrum Analyzer as below:**

Test Frequency	:	315MHz
RBW	:	1MHz
VBW	:	3MHz
Span	:	3MHz
Sweep Time	:	Auto
Detector Mode	:	Peak
Display Mode	:	Max Hold

6.3 Limit

Standard	Item	Limit
Article 2-1 Item 8	Antenna Power	Over 312 MHz to 315.05 MHz: 250μW or less Over 315.05 MHz to 315.25 MHz: 25μW or less
	Antenna Power Error	+20%

6.4 Measurement Results

Pass

Please refer to following table and plots.

Temperature:	24 ℃	Humidity :	50 %
Test By:	Lee	Test Date :	October 13, 2019

Test Frequency (MHz)	Antenna Power (dBm)	e.i.r.p. (dBm)	e.i.r.p. (μW)	Limit (μW)	Rating Antenna Power (μW)	Deviation Tolerance (μW)	Tolerances (+20%)
Test Voltage: DC 3.0V							
315	-7.39	-6.89	204.644	250	210	-5.356	-2.55 %
Test Voltage: DC 2.7V							
315	-7.40	-6.90	204.174	250	210	-5.826	-2.77 %
Test Voltage: DC 3.3V							
315	-7.39	-6.89	204.644	250	210	-5.356	-2.55 %

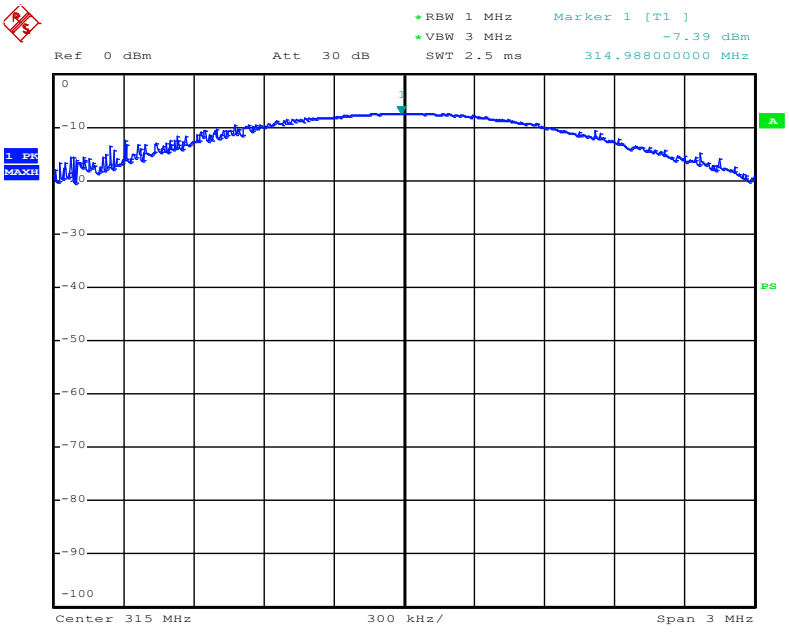
Note: 1. Rating Antenna Power declared by manufacturer

2. Deviation tolerance = e.i.r.p. - Rating Antenna Power

3. Tolerances = Deviation Tolerance / Rating Antenna Power

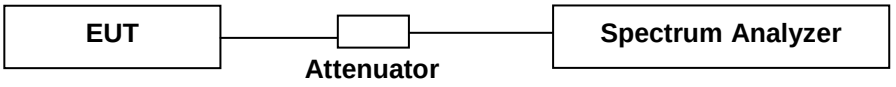
4. e.i.r.p. = Antenna Power + Antenna Gain

Attach Normal Voltages: DC 3.0V test Plots



7. TRANSMISSION TIME

7.1 Test SET-UP (Block Diagram of Configuration)



7.2 Measurement Procedure

- **Search Frequency of Peak Power and Measure of Antenna Power, Set Spectrum Analyzer as below:**

Test Frequency	:	315MHz
RBW	:	100kHz
VBW	:	300kHz
Span	:	0
Detector Mode	:	Peak
Display Mode	:	Max Hold

7.3 Limit

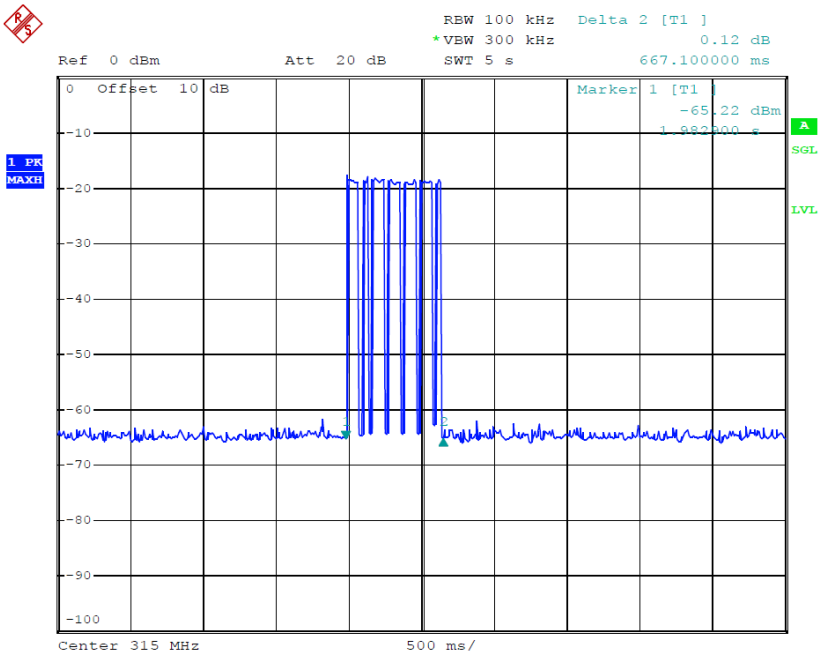
Standard	Item	Limit
Article 2-1 Item 8	Transmission Time	The radio equipment that transmit periodically shall have the function to automatically limit the transmission time for one transmission time within 1 second, with one transmission halt time being more than 10 seconds and no less than 30 times for the transmission time. It is noted that if the radio equipment is used for safety operation of an auto vehicle or any other vehicles and in the unavoidable reason, the transmission halt time of the radio equipment does not require 10 seconds or more.

7.4 Measurement Results

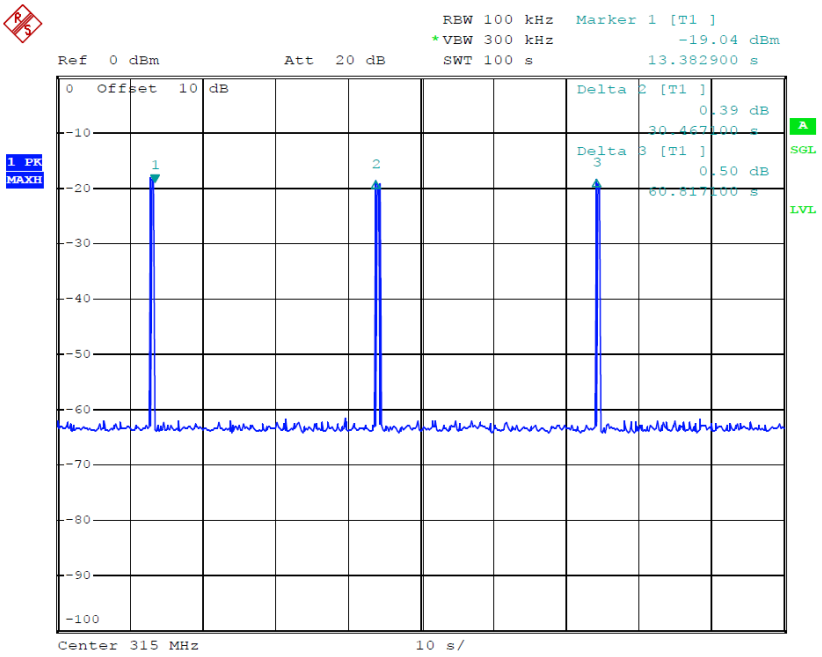
Pass

Please refer to following table and plots.

Duration time	Limit	One transmission halt time	Limit	One transmission halt time	Limit
667.1ms	<1s	30.467s	>10s	30.467s	>30*667.1ms=20.013s



The duration of a transmission Time = 667.1ms.

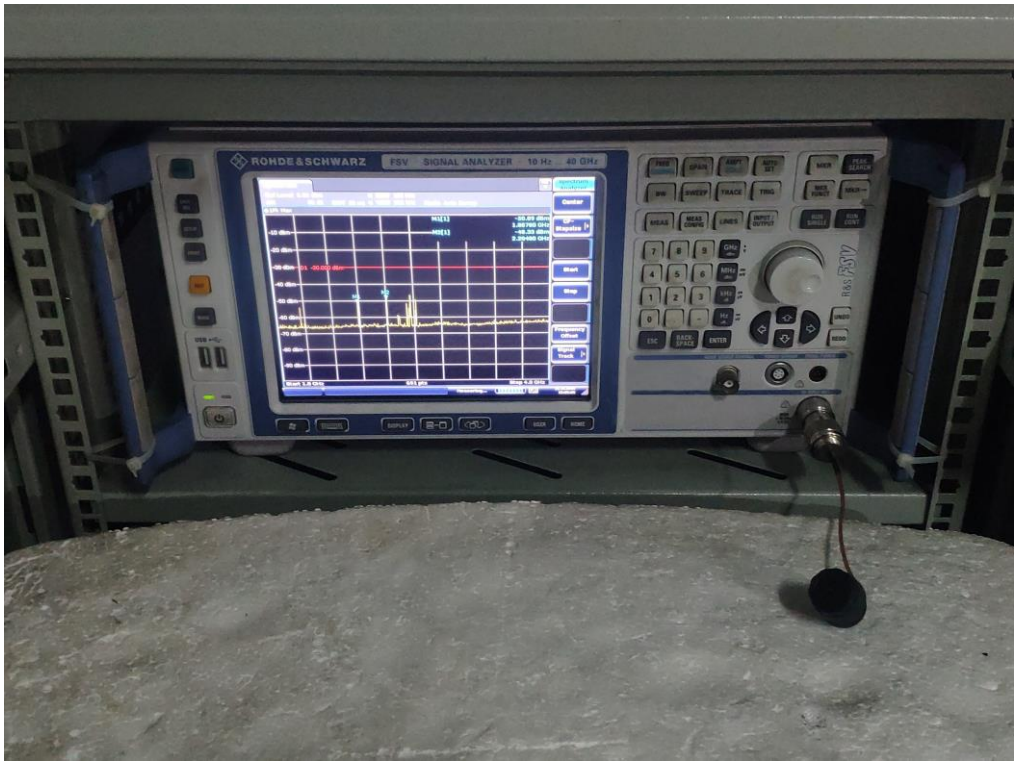


The halt period between transmissions =30.467s

8. TEST EQUIPMENT LIST

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 14, 2019	1 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	Apr. 24, 2019	1 year
Signal Generator	Rohde & Schwarz	SMB100A	102382	May 14, 2019	1 Year
Power Meter	Anritsu	ML2495A	1139001	Apr. 24, 2019	1 Year
DC Source	MY	MY8811	N/A	N/A	N/A

9. PHOTOGRAPH OF TEST SETUP



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