

# FCC Test Report

Equipment	:	1X1 802.11b/g/n-BT4.0 Combo PCIe MoB Module
Brand Name	:	LITE-ON
Model No.	:	SS335
FCC ID	:	PPQ-SS335
Standard	:	47 CFR FCC Part 15.247
<b>Operating Band</b>	:	2400 MHz – 2483.5 MHz
FCC Classification	:	DSS
Applicant	:	Lite-On Technology Corp. 4F, 90, Chien 1 Road, Chung Ho,New Taipei City 23585, Taiwan, R.O.C.

The product sample received on Jul. 24, 2014 and completely tested on Aug. 04, 2014. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance 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., the test report shall not be reproduced except in full.

Reviewed by:

James Fan / Assistant Manager



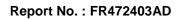


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Conformance Test Specifications							
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result		
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied		
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]:0.151MHz 39.12 (Margin 16.84dB) - AV 47.01 (Margin 18.95dB) - QP	FCC 15.207	Complied		
3.2	15.247(a)	20dB Bandwidth	BR:0.9391 MHz EDR:1.2826 MHz	N/A	Complied		
3.2	15.247(a)	Carrier Frequency Separation (ChS)	BR:1.0029 MHz EDR:1.0029 MHz	ChS ≥ BW <sub>20dB</sub> x2/3.	Complied		
3.3	15.247(a)	Number of Hopping Frequencies (N)	79	N ≥ 15	Complied		
3.4	15.247(a)	Time of Occupancy (Dwell Time)	EDR:0.314 sec	0.4 s within 0.4 x N	Complied		
3.5	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm] BR:4.31 EDR:7.43	Power [dBm] BR:21 EDR:21	Complied		
3.6	15.247(c)	Emissions in non-restricted frequency bands	Out-of -band emissions are 20dB below the highest power	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied		
3.7	15.247(c)	Transmitter Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 298.69MHz 44.83 (Margin 1.17dB) - QP	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied		





# **Revision History**

Report No.	Version	Description	Issued Date
FR472403AD	Rev. 01	Initial issue of report	Aug. 12, 2014
FR472403AD Rev. 02		Add extended coax cable information (page 5)	Aug. 15, 2014



# **1** General Description

### 1.1 Information

#### 1.1.1 RF General Information

RF General Information						
Frequency Range (MHz)Bluetooth ModeCh. Frequency (MHz)Channel NumberRF Output Power (dBm)						
2400-2483.5	BR / EDR	2402-2480	0-78 [79]	7.43		
Note 1: Bluetooth BR uses a GFSK (1Mbps).						

Note 2: Bluetooth EDR uses a combination of  $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).

Note 3: RF output power specifies that Maximum Peak Conducted Output Power.

Note 4: TX diversity function is not supported. Bluetooth signal is always transmitted through AUX path.

#### 1.1.2 Antenna Information

	Antenna Category							
	Integral antenna (antenna permanently attached)							
		Temporary RF connector provided						
	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.							
$\boxtimes$	External antenna (dedicated antennas)							
	RF connector provided							
		Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type)						
		Standard antenna connector. (e.g., SMA, N, BNC, and TNC type)						

Antenna General Information							
No.	No. Model Ant. Cat. Ant. Type Connector Gain (dBi)						
1	Aux	External	PIFA	U.FL	3.62		

Note: an extended coax cable was supplied for this antenna with below info.:

♦ Cable loss: 1dB

♦ Connector type: U.FL



#### 1.1.3 Type of EUT

	Identify EUT				
EUT Serial Number		N/A			
Pre	sentation of Equipment	Production ;  Pre-Production ;  Prototype			
	Type of EUT				
	Stand-alone				
	Combined (EUT where the radio part is fully integrated within another device)				
	Combined Equipment - Brand Name / Model No.:				
$\boxtimes$	Plug-in radio (EUT intended for a variety of host systems)				
	Other:				

#### 1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle						
Operated normally hopping mode for worst duty cycle						
Operated test mode for worst duty cycle						
Test Signal Duty Cycle (x)Power Duty Factor[dB] – (10 log 1/x)						
78.46% - test mode single channel - BR-1Mbps	1.05					
79.15% - test mode single channel - EDR-2Mbps	1.02					
78.38% - test mode single channel - EDR-3Mbps    1.06						
Bluetooth ACL packets can be 1, 3, or 5 time slots. The DH1 papacket can cover up to 3 time slots. The DH5 packet can cover	•					

dwell time and maximum duty cycle.

### 1.1.5 EUT Operational Condition

 Power Supply Type
 3.3Vdc from host.



# **1.2 Accessories and Support Equipment**

N/A

# 1.3 Testing Applied Standards

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

- 47 CFR FCC Part 15
- ANSI C63.10-2009
- FCC Public Notice DA 00-705
- FCC KDB 412172

# **1.4 Testing Location Information**

	Testing Location						
$\boxtimes$	Sporton Lab	ADD	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.				
		TEL	:	886-3-327-345	6 FAX : 886	6-3-327-0973	
$\boxtimes$	ICC Lab ADD : No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsein 333, Taiwan (R.O.C.)						
		TEL	:	886-3-271-866	6 FAX : 886	6-3-318-0155	
Т	est Conditio	on	Т	est Site No.	Test Engineer	Test Environment	Test Date
F	RF Conducted TH01-HY Mark Liao 22°C / 62% Aug. 04, 201				Aug. 04, 2014		
AC Conduction* CO01-WS Peter Lin 22°C / 57% Aug. 01,		Aug. 01, 2014					
Radiated Emission*		C	3CH01-WS	Haru Yang Anderson Hong	23°C / 68%	Jul. 31, 2014	

Note: \* Sporton Lab subcontracts this test item to ICC lab (TAF:2732).

ICC lab is a TAF accreditation test firm and also is an approved provider of Sporton Lab.

➢ FCC site registration No.: 657002

➢ IC site registration No.: 10807A-1



# 1.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty					
Test Item	Uncertainty	Limit			
AC power-line conducted emissions		±2.26 dB	N/A		
Emission bandwidth, 6dB bandwidth		±1.42 %	N/A		
RF output power, conducted	±0.63 dB	N/A			
Power density, conducted		±0.81 dB	N/A		
All emissions, radiated	30 – 1000 MHz	±3.90 dB	N/A		
	1 – 25 GHz	±4.20 dB	N/A		
Temperature	·	±0.8 °C	N/A		
Humidity		±3 %	N/A		
DC and low frequency voltages	±3 %	N/A			
Time	±1.42 %	N/A			
Duty Cycle		±1.42 %	N/A		



# 2 Test Configuration of EUT

# 2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing							
Bluetooth Mode	Transmit Chains (N <sub>⊤x</sub> )	Data Rate	Modulation Mode	RF Output Power (dBm)	Worst Mode		
BR	1	1 Mbps	BR-1Mbps	4.31	BR-3Mbps		
EDR	1	2 Mbps	EDR-2Mbps	7.02			
EDR	1	3 Mbps	EDR-3Mbps	7.43			

# 2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter									
Test Software Version	Test Software Version BtUSB_V18.12.8								
Modulation Mode	2402 MHz	2440 MHz	2480 MHz						
BR,1Mbps	8	8	8						
EDR,2Mbps	8	8	8						
EDR,3Mbps	8	8	8						



# 2.3 The Worst Case Measurement Configuration

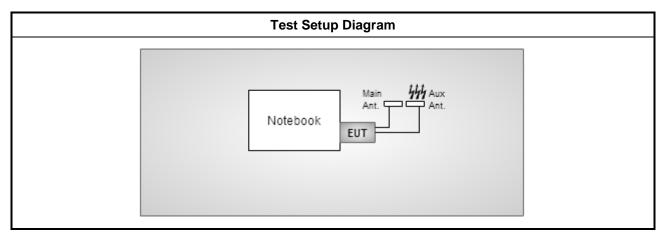
Т	The Worst Case Mode for Following Conformance Tests						
Tests Item	Tests Item         AC power-line conducted emissions						
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz						
Operating Mode	Operating Mode Description						
1	Radio link (BT)						

Th	e Worst Case Mode for Following Conformance Tests
Tests Item	RF Output Power, 20dB Bandwidth, Carrier Frequency Separation (ChS) Number of Hopping Frequencies (N), Time of Occupancy (Dwell Time)
Test Condition	Conducted measurement at transmit chains
Modulation Mode	BR-1Mbps, EDR-3Mbps

Th	e Worst Case Mode for Following Conformance Tests
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions
Test Condition	Radiated measurement
Operating Mode	☑ 1. Radio link (BT)
Modulation Mode	BR-1Mbps, EDR-3Mbps



# 2.4 Test Setup Diagram





#### **Transmitter Test Result** 3

#### 3.1 **AC Power-line Conducted Emissions**

#### 3.1.1 **AC Power-line Conducted Emissions Limit**

AC Power-line Conducted Emissions Limit							
Frequency Emission (MHz)         Quasi-Peak         Average							
0.15-0.5	66 - 56 *	56 - 46 *					
0.5-5	56	46					
5-30 60 50							
Note 1: * Decreases with the logarithm c	of the frequency						

ecreases with the logarithm of the frequency

#### 3.1.2 Measuring Instruments

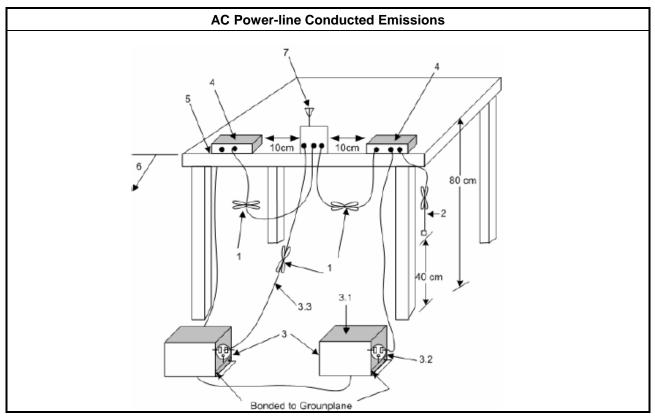
Refer a test equipment and calibration data table in this test report.

#### 3.1.3 **Test Procedures**

**Test Method** 

Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

#### 3.1.4 Test Setup





Deperating Function         Radio link (BT) $a_{0}^{level}(dBuV)$ Date: 2014-08-01 $a_{0}^{level}(dBuV)$ $B_{0}^{level}(dBuV)$ $a_{0}^{level}(dBuV)$ <t< th=""><th>Operating Mode</th><th>1</th><th></th><th></th><th></th><th>Power</th><th>r Phas</th><th>se</th><th></th><th></th><th>Neut</th><th>tral</th><th></th></t<>	Operating Mode	1				Power	r Phas	se			Neut	tral	
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60       0	70												-
$\frac{1}{1} + \frac{1}{0.151} + \frac{1}{39.12} + \frac{1}{55.96} + \frac{1}{16.84} + \frac{1}{38.61} + \frac{1}{0.49} + \frac{1}{0.49} + \frac{1}{0.50} + \frac{1}{0.22} + \frac{1}{0.50} + \frac{1}{0.22} + \frac$	60									С	ISPR/CN	IS/VCCI-B	
$ \frac{1}{1} + 1$	UV		~+-+++	+				-					
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Frequency (MHz)         Freq       Level       Limit       Level       factor       loss       Remark         MHz       dBuV       dBuV       dB       dBuV       dB       dB       dB         1*       0.151       39.12       55.96       -16.84       38.61       0.49       0.02       Average         2       0.151       47.01       65.96       -18.95       46.50       0.49       0.02       QP         3       0.163       33.97       55.30       -13.33       33.45       0.50       0.02       QP         3       0.163       35.97       55.30       -19.72       45.06       0.50       0.02       QP         5       0.182       31.33       54.37       -23.04       30.82       0.50       0.01       Average         6       0.182       42.92       64.37       -21.45       42.41       0.50       0.01       QP         7       0.510       27.43       46.00       -18.57       26.70       0.66       0.07       QP         9       1.568       20.66       46.00       -25.34       19.59       0.99       0.08       Average         1	10		_					_					ŀ
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4       0.163       45.58       65.30       -19.72       45.06       0.50       0.02       QP         5       0.182       31.33       54.37       -23.04       30.82       0.50       0.01       Average         6       0.182       42.92       64.37       -21.45       42.41       0.50       0.01       QP         7       0.510       27.43       46.00       -18.57       26.70       0.66       0.07       Average         8       0.510       35.91       56.00       -20.09       35.18       0.66       0.07       QP         9       1.568       20.66       46.00       -25.34       19.59       0.99       0.08       Average         10       1.568       28.96       56.00       -27.04       27.89       0.99       0.08       QP         11       9.302       24.56       50.00       -25.44       22.65       1.67       0.24       Average									-				
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									erage				
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### 3.1.5 Test Result of AC Power-line Conducted Emissions



Operating Mode		1				Power	<sup>.</sup> Phas	е			Li	ne	
Operating Functio	n	Radio	link (B	T)									
	evel (dBu)	V)									Da	te: 20	14-08-01
80													
70													
-											CISPR	/CNS/	VCCI-В
60	~												
50											ISPR/CI	IS/VC	CI-B AV
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-				-	Frequ	ency (MH	lz)	-					
	Freq	Level	Limit	Over	Read	LISN	cable						
	MHz	dBuV	Line dBuV	Limit dB	Level dBuV	factor dB	loss dB		mar	k			
										-			
1 2	0.152	35.80 47.28		-20.11 -18.63	35.37 46.85	0.41 0.41	0.02		era	ge			
3	0.182		54.42	-22.59	31.40	0.42	0.01	Av	era	ge			
4 5	0.182	43.82 22.31		-20.60 -29.16	43.39 21.84	0.42 0.46	0.01		era	ge			
6		33.15		-28.32		0.46	0.01			-			
7 8*	0.497 0.497	27.24 38.94		-18.81 -17.11		0.58 0.58	0.06		era	ge			
9	1.868	22.35	46.00	-23.65	21.33	0.98	0.04	Av	era	ge			
10		29.99 17.83					0.04		era	ge			
	9.401	24.52	60.00	-35.48	22.62	1.66	0.24	QP					
9 10	1.868 1.868 9.401	22.35 29.99 17.83	46.00 56.00 50.00	-23.65 -26.01 -32.17	21.33 28.97 15.93	0.98 0.98 1.66	0.04 0.04 0.24	Av QP Av	era era	-			



# 3.2 20dB Bandwidth and Carrier Frequency Separation

#### 3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

	20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems						
$\boxtimes$	2400-2483.5 MHz Band:						
	□ N ≥ 75 and ChS ≥ MAX (20 dB bandwidth, 25 kHz).						
	$\square$ N ≥ 15 and ChS ≥ MAX (20 dB bandwidth x 2/3, 25 kHz).						
<b>N</b> : N	N: Number of Hopping Frequencies; ChS: Hopping Channel Separation						

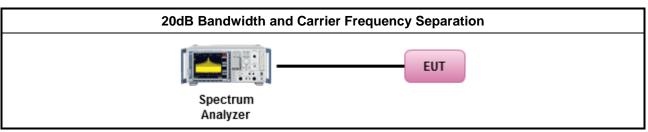
#### 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.2.3 Test Procedures

	Test Method
$\boxtimes$	Refer as ANSI C63.10, clause 6.9.1 for 20 dB bandwidth measurement.
$\boxtimes$	Refer as ANSI C63.10, clause 7.7.2 for carrier frequency separation measurement.
$\boxtimes$	For conducted measurement.
	The EUT supports single transmit chain and measurements performed on this transmit chain.
	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

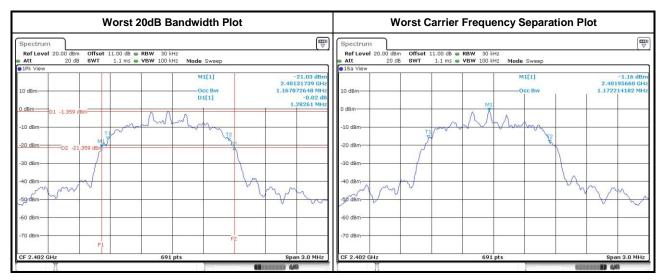
#### 3.2.4 Test Setup

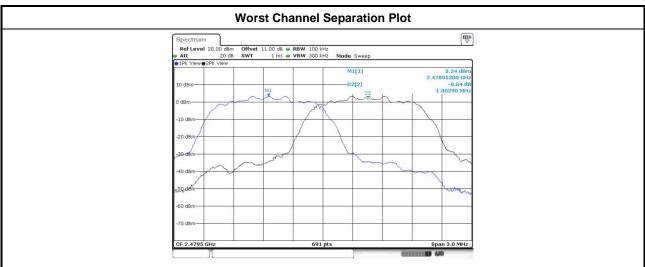




#### 3.2.5 Test Result of 20dB Bandwidth and Carrier Frequency Separation

	20dB Bandwidth and Carrier Frequency Separation Result							
Modulation Mode	Freq. (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)	Channel Separation (MHz)	Channel Separation Limits (MHz)			
BR,1Mbps	2402	0.9391	0.8770	1.0029	0.626			
BR,1Mbps	2441	0.9391	0.8770	1.0029	0.626			
BR,1Mbps	2480	0.9391	0.8857	1.0029	0.626			
EDR-2Mbps	2402	1.2826	1.1722	1.0029	0.855			
EDR-2Mbps	2441	1.2783	1.1722	1.0029	0.852			
EDR-2Mbps	2480	1.2783	1.1722	1.0029	0.852			
EDR-3Mbps	2402	1.2826	1.1679	1.0029	0.855			
EDR-3Mbps	2441	1.2826	1.1679	1.0029	0.855			
EDR-3Mbps	2480	1.2826	1.1722	1.0029	0.855			
Resu	ult		Com	plied				







# 3.3 Number of Hopping Frequencies

### 3.3.1 Number of Hopping Frequencies Limit

	Number of Hopping Frequencies Limit for Frequency Hopping Systems
$\boxtimes$	2400-2483.5 MHz Band:
	□ N ≥ 75 and ChS ≥ MAX (20 dB bandwidth, 25 kHz).
	$\square$ N ≥ 15 and ChS ≥ MAX (20 dB bandwidth x 2/3, 25 kHz).
N:	Number of Hopping Frequencies; <b>ChS</b> : Hopping Channel Separation

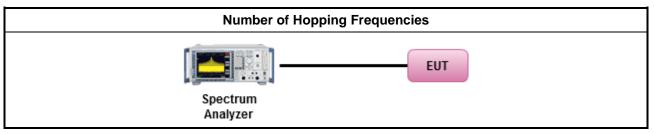
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

	Test Method					
$\square$	Refer as ANSI C63.10, clause 7.7.3 for number of hopping frequencies measurement.					
$\square$	For conducted measurement.					
	The EUT supports single transmit chain and measurements performed on this transmit chain.					
	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.					

#### 3.3.4 Test Setup





# 3.3.5 Test Result of Number of Hopping Frequencies

Number of Hopping Frequencies Result							
Modulation Mode	Modulation Mode         Freq. (MHz)         Hopping Channel Number (N)         Hopping Channel Number Limits						
EDR-3Mbps	2402-2480	79	15				
Result Complied							

			$\frown$			G
Ref Level 20.00 dBm Offset 11.00 dB			Spectrum	Offset 11.00 dB - RBW 100		The second secon
Att 30 dB 🖷 SWT 2 ms	VBW 300 kHz Mode Sweep		🖷 Att 🛛 30 dB 🖷			
1Pk View			1Pk View			
	M2[1]	1.15 dBm 2.4420000 GHz			M2[1]	3.39 dB 2.4800000 GF
10 dBm	M1[1]	2.84 dBm	10 dBm-		M1[1]	3.11 dB
M1		2.4020000 Ghig	M1	1105-11055-01 000-016		2.4430000 GI
o Borthand and the and	A MANA ANA ANA ANA	where the the the the the the the the the th	Blaby My My My My	LAMAAAAAAAAA	Annapanan	1 Arnan
-10 dBm			-10 dBm			
-20 dBm			-20 dBm			
-30 dBm			-30 dBm-			
4						1
-40 dBm-			-40 dBm			
-50 dBm			-50 dBm			hall
-30 dbit			-50 dbin			
-60 dBm-			-60 dBm-			
			101010000			
-70 dBm-			-70 dBm			
10 - 11 11 19 19 19 19 19 19 19 19 19 19 19			68-17 88-868-94			
CF 2.42142 GHz	691 pts	Span 42.0 MHz	CF 2.4634 GHz	691	nte	Span 42.0 MHz
	ost pro	span 42.0 MHz	GI 2.1001 GH2	091	pts	Span 42.0 MH



# 3.4 Time of Occupancy (Dwell Time)

#### 3.4.1 Time of Occupancy (Dwell Time) Limit

#### Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems

 $\boxtimes$  2400-2483.5 MHz Band: Dwell time  $\leq$  0.4 second within 0.4 x N

N: Number of Hopping Frequencies

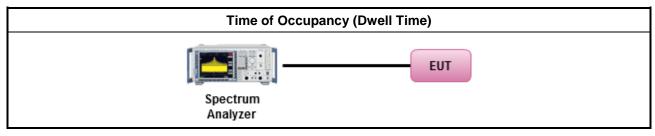
#### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

		Test Method
$\square$	Refe	er as ANSI C63.10, clause 7.7.4 for dwell time measurement.
$\square$		etooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum II time and maximum duty cycle.
		The DH1 packet can cover a single time slot. A maximum length packet has duration of 1 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is 1/1600 seconds, or 0.625ms. DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 10.12 x 31.6 = 320 within 31.6 seconds.
		The DH3 packet can cover up to 3 time slots. A maximum length packet has duration of 3 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is 3/1600 seconds, or 1.875ms. DH3 Packet permit maximum 1600 / 79 / $4 = 5.06$ hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 5.06 x 31.6 = 160 within 31.6 seconds.
		The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is 5/1600 seconds, or 3.125ms. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $3.37 \times 31.6 = 106.6$ within 31.6 seconds
$\boxtimes$	For	conducted measurement.
	$\square$	The EUT supports single transmit chain and measurements performed on this transmit chain.
		The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

#### 3.4.4 Test Setup

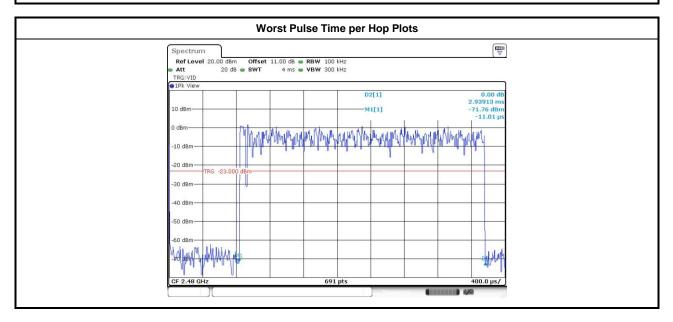




#### 3.4.5 Test Result of Time of Occupancy (Dwell Time)

Time of Occupancy (Dwell Time) Result							
Modulation Mode	Modulation ModeFreq. (MHz)Pulse Time per Hop (ms)Number of Pulse in [0.4 x N sec]Dwell Time in [0.4 x N sec]Dwell Time in (s)Dwell Time Limits (s)						
EDR-3Mbps	2480	2.94	106.7	0.314	0.4		
Result			Comp	lied			

Bluetooth ACL packets can be 1, 3, or 5 time slots. The DH1 packet can cover a single time slot. The DH3 packet can cover up to 3 time slots. The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is 5/1600 seconds, or 3.125ms.





# 3.5 **RF Output Power**

### 3.5.1 RF Output Power Limit

	RF Output Power Limit for Frequency Hopping Systems
Max	kimum Peak Conducted Output Power Limit
$\square$	2400-2483.5 MHz Band:
	□ For Hopping Channel: $N \ge 75$
	If $G_{TX} \le 6 \text{ dBi}$ , then $P_{Out} \le 30 \text{ dBm} (1 \text{ W})$
	If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	For Hopping Channel: N ≥ 15
	If $G_{TX} \le 6$ dBi, then $P_{Out} \le 21$ dBm (0.125 W)
	If $G_{TX} > 6$ dBi, then $P_{Out} = 21 - (G_{TX} - 6)$ dBm
e.i.r	.p. Power Limit:
$\boxtimes$	2400-2483.5 MHz Band:
	□ For Hopping Channel: N ≥ 75 - $P_{eirp} \le 36 \text{ dBm} (4 \text{ W})$
	For Hopping Channel: 75 > N $\ge$ 15 - P <sub>eirp</sub> $\le$ 27 dBm (0.5 W)
P <sub>eirp</sub> N: N	= the maximum transmitting antenna directional gain in dBi. = e.i.r.p. Power in dBm. Number of Hopping Frequencies 5: Hopping Channel Separation

#### 3.5.2 Measuring Instruments

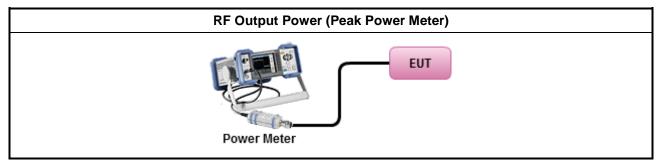
Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

	Test Method						
$\boxtimes$	Max	imum Peak Conducted Output Power					
		Refer as FCC DA 00-0705, spectrum analyzer for peak power.					
	$\boxtimes$	Refer as FCC DA 00-0705, peak power meter for peak power.					
		Refer as ANSI C63.10, clause 6.10.2.1 a) for peak power meter.					
		Refer as ANSI C63.10, clause 6.10.2.1 a) for spectrum analyzer - (RBW $\ge$ EBW).					
$\boxtimes$	For	conducted measurement.					
	$\boxtimes$	The EUT supports single transmit chain and measurements performed on this transmit chain.					
		The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.					



#### 3.5.4 Test Setup

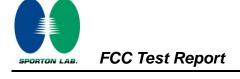


### 3.5.5 Test Result of Maximum Peak Conducted Output Power

	Maximum Peak Conducted Output Power Result								
Condition		RF Output Power (dBm)							
Modulation Mode	Freq. (MHz)	RF Output Power	Power Limit	Antenna Gain (dBi)	EIRP Power	EIRP Limit			
BR-1Mbps	2402	4.19	21	3.62	7.81	27			
BR-1Mbps	2440	4.27	21	3.62	7.89	27			
BR-1Mbps	2480	4.31	21	3.62	7.93	27			
EDR-2Mbps	2402	6.75	21	3.62	10.37	27			
EDR-2Mbps	2441	6.81	21	3.62	10.43	27			
EDR-2Mbps	2480	7.02	21	3.62	10.64	27			
EDR-3Mbps	2402	7.04	21	3.62	10.66	27			
EDR-3Mbps	2440	7.32	21	3.62	10.94	27			
EDR-3Mbps	2480	7.43	21	3.62	11.05	27			
Result				Complied					

	Maximu	ım Average Co	nducted Output	Power Result			
Condition		RF Output Power (dBm)					
Modulation Mode	Freq. (MHz)	RF Output Power	Power Limit	Antenna Gain (dBi)	EIRP Power	EIRP Limit	
BR-1Mbps	2402	4.08	21	3.62	7.70	27	
BR-1Mbps	2440	4.16	21	3.62	7.78	27	
BR-1Mbps	2480	4.19	21	3.62	7.81	27	
EDR-2Mbps	2402	4.09	21	3.62	7.71	27	
EDR-2Mbps	2441	4.25	21	3.62	7.87	27	
EDR-2Mbps	2480	4.56	21	3.62	8.18	27	
EDR-3Mbps	2402	4.06	21	3.62	7.68	27	
EDR-3Mbps	2440	4.20	21	3.62	7.82	27	
EDR-3Mbps	2480	4.52	21	3.62	8.14	27	
Result	•			Complied			

Note: Average power is for reference only.



### 3.6 Emissions in non-restricted frequency bands

#### 3.6.1 Emissions in non-restricted frequency bands limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

#### 3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.6.3 Test Procedures

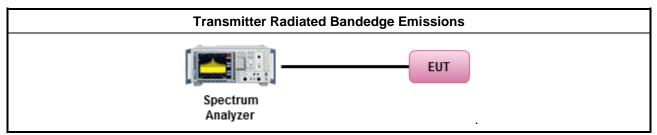
#### **Reference level measurement**

- 1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
- 2. Trace = max hold , Allow Trace to fully stabilize
- 3. Use the peak marker function to determine the maximum PSD level

#### **Emission level measurement**

- 1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
- 2. Trace = max hold , Allow Trace to fully stabilize
- 3. Scan Frequency range is up to 25GHz
- 4. Use the peak marker function to determine the maximum amplitude level

#### 3.6.4 Test Setup





# 3.6.5 Test Result of Emissions in non-restricted frequency bands

#### GFSK

Но		Норр	ing off				
30MHz~250	TX Freq 240	02MHz / 30M	Hz~25GHz	z (down 2	0dBc)		
Spectrum Ref Level 20.00 dBm Offset 11.00 dB @ RBV				ffset 11.00 dB • RBW 100			(T
Att 30 dB SWT 32.1 ms  VBV 1Pk View	W 300 kHz Mode Sweep		Att 30 dB S	WT 32.1 ms 🖷 VBW 300			
10 dBm-01 3.840 dBm (1997)	M1[1] M2[1]	3.64 dBm 2.46896190 GHz -49.31 dBm 2.40000000 GHz	10 dBm	6/1	M1[1] M2[1]		3.33 dB 40196400 GI -52.24 dB 40000000 GI
10 dBm			-10 dBm	dam			
		hannana lutanan na adam in in	-40 dBm	M <sup>D</sup> athentics and parts of our parts of parts	n in many distriction of 13	an formalized and a state	
60 dBm	92001 pts	Stop 2.55 GHz	-70 dBm	F1 320	F2-	s	top 2.55 GHz
arker	value Function	Function Result		C-value Y-value 2.401964 GHz 3.33 d	1Bm	Function Re	sult
M1 1 2.4689619 GHz M2 1 2.4 GHz -4	3.84 dBm 49.31 dBm 48.79 dBm	C	M2 1 M3 1	2.4 GHz -52.24 d 2.4835 GHz -51.96 d		(Internet	4,40
M1         1         2.469919 GHz           M2         1         2.46935 GHz            M3         1         2.4835 GHz            pectrum         Ref Level         20.00 dBm         Offset 11.00 dB         e RBV           Att         30 dB         SVMT         250 ms         VBV	3.84 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.40 dBm 9.4	(mmm) 44	M2         1           M3         1           Spectrum         Ref Level 20.00 dBm O ott           Ref Level 20.00 dBm O ott         30 dB S	2.4 GHz -52.24 d	kHz		<b>199</b>
M1         1         2.4699019 GHz           M2         1         2.4 GHz           M3         1         2.4835 GHz           Spectrum         Ref Level 20.00 dBm         Offset 11.00 dB ● RBW           Att         30 dB         SWT         250 ms ● VBy           IPk View         IPk View         IPk View         IPk View	3.84 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.31 dBm 9.40 dBm 9.4	(mmmm) 44 (♥) -36.50 dBm 20.235950 GHz	M2         1           M3         1           Spectrum         Ref Level 20.00 dBm O           Att         30 dB S           IPk View         1	2.4 GHz -52.24 G 2.4835 GHz -51.96 d	kHz	(11111)	-36.66 dB 0.255460 GI
M1 1 2.4699010 GHz	V 100 kHz W 300 kHz Mode Sweep	-36.53 dBm	M2         1           M3         1           Spectrum         Ref lavel 20.00 dBm O           Att         30 dB           91Pk View         10           10 dBm         01 2.330 dBm           0 dBm         01 2.330 dBm	2.4 GHz -52.24 G 2.4835 GHz -51.96 d	kHz KHz Mode Sweep	(111111) 	-36.66 dE
M1         1         2.469910 GHz           M2         1         2.4 GHz           M3         1         2.4835 GHz           M3         1         2.4835 GHz           M3         1         2.4835 GHz           M4         1         2.4835 GHz           M3         1         2.4835 GHz           M3         1         2.4835 GHz           M4         30 dB         SWT           S0 dB         SWT         250 ms           VBV         250 ms         VBV           D dBm         0         0           0 dBm         0         0           0 dBm         0         0	V 100 kHz W 300 kHz Mode Sweep	-36.53 dBm	M2         1           M3         1           Spectrum         Image: Construction of the second	2.4 GHz -52.24 G 2.4835 GHz -51.96 d #ffset 11.00 dB ← RBW 100 WT 250 ms ← VBW 300	kHz KHz Mode Sweep		-36.66 dE
M1         1         2.4699010 GHz           M2         1         2.46935 GHz            M3         1         2.4835 GHz            M3         1         2.4835 GHz            Ref Level         20.00 dBm         Offset         11.00 dB         RBW           Ref Level         20.00 dBm         Offset         250 ms         VBV           New         01         3.840 dBm         0         0         0         0         0.2         -16.160 dBm         0	V 100 kHz W 300 kHz Mode Sweep	-36.53 dBm	M2         1           M3         1           Spectrum         Ref Level 20.00 dBm O           Att         30 dB S'           IPR View         10 dBm           0 dBm         01 3.330 dBm           -10 dBm         -02 -10.670	2.4 GHz -52.24 G 2.4835 GHz -51.96 G #ffset 11.00 dB ● RBW 100 WT 250 ms ● VBW 300 dBm-	Altz KHZ Mode Sweep M1[1]		-36.66 df
M1         1         2.469919 6Hz           M2         1         2.469219 6Hz           M3         1         2.4835 GHz            M3         1         2.4835 GHz            Ref Level         20.00 dBm         Offset         11.00 dB         RB           Att         30 dB         SWT         250 ms         VBV           Db         0 dBm         0         dBm         0         dBm           00 dBm         01         3.840 dBm         0         0         dBm         0           10 dBm         02         -16.160 dBm         0         0         dBm         0         0           10 dBm         02         -16.160 dBm         0	V 100 KHz V 100 KHz V 100 KHz Mode Sweep M1[1]	-36.53 dBm 20.235950 GHz	M2         1           M3         1           Spectrum         Ref level 20.00 dBm O           Att         30 dB S           PIPk View         10 dBm O1 3.330 dBm           0 dBm O1 3.330 dBm O1 3.330 dBm         -10 dBm	2.4 GHz -52.24 G 2.4835 GHz -51.96 G #ffset 11.00 dB ● RBW 100 WT 250 ms ● VBW 300 dBm-	kHz kHz kHz Mode Sweep M1[1]		-36.66 dB
M1         1         2.4699619 GHz           M2         1         2.4 GHz           M3         1         2.4 GHz           M4         30 dB         SWT           M4         30 dB         SWT           M4         01         3.840 dBm           M4         02         -16.160 dBm           20 dBm         02         -16.160 dBm	V 100 KHz V 100 KHz V 100 KHz Mode Sweep M1[1]	-36.53 dBm 20.235950 GHz	M2         1           M3         1           M3         1           Ref tovol 20.00 dBm         0           The second data of the sec	2.4 GHz -52.24 G 2.4835 GHz -51.96 G	Altz KHZ Mode Sweep M1[1]		-36.66 dB



#### Report No. : FR472403AD

	Hopping off			Hopping off	
TX Freq 2441MH	z / 30MHz~25GH	z (down 20dBc) TX	Freq 2480MHz	z / 30MHz~25GI	Hz (down 20dBc)
Spectrum Ref Level 20.00 dBm Offset 11.00 d Att 30 dB SWT 32.1 n	dB ● RBW 100 kHz ns ● VBW 300 kHz Mode Sweep	Spect Ref L Att	evel 20.00 dBm Offset 11.00 d	B • RBW 100 kHz s • VBW 300 kHz Mode Swee	Ţ.
1Pk View		●1Pk V			
10 dBm-D1 3.560 dB	M1[1] M1 M2[1]	3.56 dBm 2.44096280 GHz -53.01 dBm 2.40000000 GHz 0 dBm	D1 3.820 dBm	M1[1] M2[1]M	3.82 dBn 2.47979280 GH 1 -46.34 dBn 2.4000000 GH
-10 dBm		-10 dBr	D2 -16.180 dBm		
-20 dBm		-20 dBn -30 dBn	ŋ		
40 dBm		-40 dBn			
-60 dBm	- F	-60 dBr -70 dBr			F2
Start 2.35 GHz	32001 pts	Stop 2.55 GHz Start 2	.35 GHz	32001 pts	Stop 2.55 GHz
M2         1         2.4 GHz           M3         1         2.4835 GHz			1 2.4 GHz 1 2.4835 GHz		CERTIFICATE 449
	d8 ● RBW 100 kHz ns ● VBW 300 kHz Mode Sweep	(	evel 20.00 dBm Offset 11.00 d	8 • RBW 100 kHz s • VBW 300 kHz Mode Swee	(T
1Pk View	M1[1]	-36.71 dBm 20.250000 GHz	ew	M1[1]	-35.89 dBr 20.260920 GH
0 dBm		10 dBm-	D1 3.820 dBm		
10 dBm		-10 dBr	D2 -16.180 dBm		
20 dBm		-20 dBn -30 dBn			
40 dBm	and the second state of th	40 dBr	and the second sec		Martin Martin Constant
50 dBm		-60 dBn			
70 dBm		-70 dBn			
Start 30.0 MHz	32001 pts	Stop 25.0 GHz Start 3	U.U MHZ	32001 pts	Stop 25.0 GHz



#### 8DPSK

Hopping on			Hopping of	off	
30MHz~25GHz (down 2	:0dBc) TX	Freq 2402MH	lz / 30MHz~2	25GHz (dow	n 20dBc)
Spectrum RefLevel 20.00 dBm Offset 11.00 dB @ RBW 100 kHz		evel 20.00 dBm Offset 11.0	0 dB 👜 <b>RBW</b> 100 kHz	90 - 101	(IIII) ▽
Att 30 dB SWT 32.1 ms  VBW 300 kHz Mode Sweep 1Pk View	Att     IPk V		1 ms 🖶 VBW 300 kHz 🛛 Mod	le Sweep	
10 dBm         M1[1]           0 dBm         11 MUD JULATICATION JUL	3.83 dBm 2.47896160 GHz - 50.45 dBm 2.4000000 GHz 0 dBm	D1 3.350 dBm		M1[1] M2[1]	3.35 dBm 2.40196400 GHz -50.45 dBm -2.4000000 GHz
10 dBm	-10 dBr -20 dBr -30 dBr	n D2 -16.650 dBm			
40 dBm 40 dBm 40 dBm 40 dBm 40 dBm 20	-40 dBr Garber for en entre her en and writele extra d	4		Listite and States and the day is a	
-60 dBm	-60 dBr 2			F2	
Start 2.35 GHz 32001 pts Jarker	Stop 2.55 GHz Start 2 Marker	2.35 GHz	32001 pts		Stop 2.55 GHz
M1         1         2.4799616 GHz         3.83 dBm           M2         1         2.4 GHz         -50.45 dBm           M3         1         2.4835 GHz         -49.92 dBm		1 2.401964 0 1 2.40 1 2.4835 0	GHz -50.45 dBm	Metawrine	10000 449
Spectrum RefLevel 20.00 dBm Offset 11.00 dB ⊕ RBW 100 kHz Att 30 dB SWT 250 ms ⊕ VBW 300 kHz Mode Sweep	(rm) ♥ Spect Ref L	evel 20.00 dBm Offset 11.0	0 dB 🖷 RBW 100 kHz 0 ms 🖶 VBW 300 kHz Moo	<b>le</b> Sweep	
1Pk View M1[1]	-36.07 dBm 20.253120 GHz	iew		M1[1]	-36.05 dBm 20.198500 GHz
D1 3.830 dBm 0 0 dBm 0 0 dBm	0 dBm-	D1 3.350 dBm			A
-10 dBm	-10 dBr -20 dBr	D2 -16.650 dBm			
-30 dBm	M1 -30 dBr		The section of the sector		11 A Provinsional Association
50 dbm	-60 dBr				
	00 00				
-70 dBm	-70 dBr	n	32001 pts		Stop 25.0 GHz



#### Report No. : FR472403AD

Ref Level 20.00 dim         Offset 11.00 die         BHW 100 Hz           11         3.0 die         SVII         32.1 ms         VBW 300 Hz         Mode Swepp           10 dim         1         1.0 die         MIII         2.4 die6200 die         3.55 dien           10 dim         1         2.4 die6200 die         3.55 dien         3.66 die         2.4 die6200 die           20 dim         1         1.2 550 die         MIIII         2.4 die6200 die         3.25 die           20 dim         1         2.4 die6200 die         3.25 die         3.24 die         3.24 die           20 dim         1         2.4 die6200 die         3.25 die         3.24 die         3.24 die           20 dim         2.4 die0200 die         3.25 die         3.25 die         3.26 die         3.24 die           20 dim         2.4 die         2.4 die         2.4 die         3.25 die         3.25 die           20 dim         2.2 die         2.4 die         2.4 die         4.4 die         4.4 die           2.0 dim         2.4 die         2.4 die         4.4 die         4.4 die         4.4 die           2.0 dim         2.4 die         3.2 die         3.2 die         3.2 die         3.2 die           2.0 dim	Hopping of	if		Но	pping off	
Ref Loval 20.2 mm         Offend 11.0 dit # BWY 120 11m         Image: Second 200 mm         Ima	TX Freq 2441MHz / 30MHz~2	5GHz (down 20dBc)	TX Freq 2	2480MHz / 3	OMHz~25GH	lz (down 20dBc)
Ref Lavel 20.2 Bin         Offset         1.50 dit         Bit Will         2.1. In a         WW 20.1. In a         W 20.1. In a         WW 20.1. In a	Spectrum	(H)	Spectrum			E.
BIT: Num       All 1       2.4492.75       Bit: Num       Discussion       <	Ref Level 20.00 dBm Offset 11.00 dB - RBW 100 kHz	(-)	Ref Level 20.00 dBr			
10 dbm       12		Sweep		B SWT 32.1 ms 🖷 VBV	300 kHz Mode Sweep	
10 dBm       13 association       10 dBm       13 dBm		1[1] 3.55 dBm 2.44096280 GHz			M1[1]	3.86 dBr 2.47996160 GH
0 dB - 02 -15, 400 dB - 02 -15, 400 dB - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	D1 3.550 dBm	[2[1] -52.75 dBm	D1 3.860 c	IBm-	M2[1]M1	-49.68 dBr
30 dm       Q2-16,450 dm       Q2       Q2-16,450 dm       Q2	) dBm		0 dBm			
0.0       0	COLUMN THE REAL PROPERTY AND A DESCRIPTION OF A DESCRIPTI			C 100 - C - C - C - C - C - C - C - C - C -		
40 dm       40 dm <td< td=""><td>20 dBm</td><td></td><td>-20 dBm</td><td>0.140 dbm</td><td></td><td></td></td<>	20 dBm		-20 dBm	0.140 dbm		
Schwarz       300 Jpt	-30 dBm		-30 dBm			
Stording and an and a set of a	-40 dBm		-40 dBm-			
70 dm       10 dm <td< td=""><td>SOME DATA STATISTICS AND AND AND AND AND AND AND AND AND AND</td><td>M3 Units of the second second</td><td>us out and a minimum and</td><td>M2 And and and the second distance of the</td><td>Minister and the state</td><td>13 A diana di analisi ka milarati Pontanon aki a tintun</td></td<>	SOME DATA STATISTICS AND	M3 Units of the second second	us out and a minimum and	M2 And and and the second distance of the	Minister and the state	13 A diana di analisi ka milarati Pontanon aki a tintun
Ref         200 pts         stop 2.55 0Hz           1arker         Trype         Ref 12.35 0Hz         2200 pts         Stop 2.55 0Hz           Mil         1         2.490525 0Hz         3.55 0Bm         Function Result         Mil           Mil         1         2.490525 0Hz         3.55 0Bm         Function Result         Mil         1         2.4935 0Hz         -56 0Hm         Function Result           Mil         1         2.4935 0Hz         -51.47 0Bm         -61.47 0Bm         -61.40 0Bm         -61.40 0Bm         -6	60 dBm		-60 dBm			
Ref       200 pts       Stop 2.55 0H;         10 ds.       1       2.495 0Hz       3.55 ds.       Function Result         Mil       1       2.495 0Hz       -51.00 0Hz       Function Result         Mil       2.00 0Hz       Mode Sweep       Filt       Function Result       Function Result         10 dsn       0Hz       2.00 0Hz       Mode Sweep       Filt       Function Result       Function Result         10 dsn       0 dsn       0 dsn       0 dsn       0 dsn       Function Result       Function Result       Function Result	70 dBm		-70 dBm			
Index         Tupe         Iter / Tupe         Iter	F1	F2		F1		-2
Type   Fef         Trc         X-value         Y-value         Function         Function           Mi         1         2.4495592 (Hz         3.55 dm         1         2.4495 (Hz         3.6 dm         1           Mi         1         2.4495 (Hz         3.5 dm         1         2.4495 (Hz         3.6 dm         1           Mi         1         2.4495 (Hz         3.6 dm         1         2.4495 (Hz         4.40 dm         1         1         2.4495 (Hz		Stop 2.55 GHz			32001 pts	Stop 2.55 GHz
Ma       1       2.4 GHz       -52.75 dBm         Ma       1       2.4 GHz       -40.6 db dBm         Ma       1       2.4 dHz       -40.6 db dBm         Spectrum       Ma       1       2.4 dHz       -40.6 db dBm         10 dBm       Mi [1]       -00.6 dHm       Mi [1]       -00.6 dHm       Mi [1]       -00.5 A2 dBn         10 dBm       Ma       1       2.4 dHz       -40.6 dBm       Mi [1]       -00.5 A2 dBn         20 dBm       Ma (1)       20.2 10.6 dBm       Mi [1]       -00.5 A2 dBn       Mi [1]       -00.5 A2 dBn         30 dBm       Ma (1)       20.2 10.6 dBm       Ma (1)       -00.6 dBm       Ma (1)       -00.6 dBm         30 dBm       Ma (1)       20.2 10.6 dBm       Ma (1)       -00.6 dBm       -00.6 dBm       -00.6 dBm         30 dBm       Ma (1)       20.6 dBm       Ma (1)       -00.6 dBm       -00.6 dBm	Type Ref Trc X-value Y-value Func	tion Function Result	Type Ref Trc	X-value Y-	Value Function	Function Result
Spectrum	M2 1 2.4 GHz -52.75 dBm		M2 1	2.4 GHz -4	9.68 dBm	
11Pk View       M1[1]       -36.64 dB       M1[1]       -36.64 dB         10 dBm       1       1       1       1       20.222690 GH         10 dBm       1       1       1       1       1       20.210700 GH         10 dBm       1       1       1       1       1       1       1         10 dBm       1       1       1       1       1       1       1       1         20 dBm       1 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>						
10 dBm       M1[1]       -36.64 dBm         10 dBm					/ 100 kHz	
10 d8m	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30         dB         SWT         250         ms         VBW         300         kHz         Mode		RefLevel 20.00 dBr Att 30 d		/ 100 kHz / 300 kHz Mode Sweep	
0 dBm       Image: Constraint of the second se	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100 kHz           Att         30 dB         SWT         250 ms         VBW         300 kHz         Mode           1Pk View           250 ms         VBW         300 kHz         Mode	Sweep 11[1] -36.64 dBm	RefLevel 20.00 dBr Att 30 d		/ 300 kHz Mode Sweep	-35.82 dBi
10 dem       0.0 <t< td=""><td>RefLevel         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30         dB         SWT         250 ms         WBW         300 kHz         Mode           IPK View         Mode         Mode         Mode         Mode         Mode</td><td>Sweep 11[1] -36.64 dBm</td><td>Ref Level 20.00 dBr Att 30 d 1Pk View</td><td></td><td>/ 300 kHz Mode Sweep</td><td>-35.82 dBi</td></t<>	RefLevel         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30         dB         SWT         250 ms         WBW         300 kHz         Mode           IPK View         Mode         Mode         Mode         Mode         Mode	Sweep 11[1] -36.64 dBm	Ref Level 20.00 dBr Att 30 d 1Pk View		/ 300 kHz Mode Sweep	-35.82 dBi
0.02       -16,450 dBm       0.02       -16,450 dBm       0.02       -16,140 dBm       0.02       0.02       -16,140 dBm       0.02 <td>Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30         dB         SWT         250 ms         VBW         300 kHz         Mode           Ipk View             M           10 dBm        </td> <td>Sweep 11[1] -36.64 dBm</td> <td>Ref Level 20.00 dBr Att 30 d 1Pk View 10 dBm D1 3.860 d</td> <td>B SWT 250 ms . VB</td> <td>/ 300 kHz Mode Sweep</td> <td>-35.82 dBi</td>	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30         dB         SWT         250 ms         VBW         300 kHz         Mode           Ipk View             M           10 dBm	Sweep 11[1] -36.64 dBm	Ref Level 20.00 dBr Att 30 d 1Pk View 10 dBm D1 3.860 d	B SWT 250 ms . VB	/ 300 kHz Mode Sweep	-35.82 dBi
20 dBm	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         Hz           Att         30         dB         SWT         250 ms         WBW         300 kHz         Mode           Ipk         View         M         M         M         M           10         dBm         M         M         M	Sweep 11[1] -36.64 dBm	Ref Level         20.00 dBr           Att         30 d           IPk View         10 dBm           0 dBm         01 3,860 c	B SWT 250 ms . VB	/ 300 kHz Mode Sweep	-35.82 dBi
40 dBm 40	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30.06         SWT         250 ms         VBW         300 kHz         Mode           alpk view         M         0.08         M         M         M           10 dBm         0.08         M         M         M         M           10 dBm         0.08         M         M         M         M	Sweep 11[1] -36.64 dBm	Ref Level 20.00 dBr           Att         30 d           ● 1Pk View           10 dBm           0 dBm           -10 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi
40 dbm	Ref Level         20.60         dBm         Offset         11.00         dB         RBW         100         kHz         Mode           Att         30         30         B         WW         250         ms         VBW         300         kHz         Mode           1Pk         View         M         M         M         M         M         M           0         dBm         01         3.550         dBm         M         M         M           10         dBm         02         -16         450         dBm         M         M	Sweep 11[1] -36.64 dBm	Ref Level 20.00 dBr           Att 30 d           ID dBm           0 dBm           -10 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi
50 dbm     60 dbm <td>Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30 dB         SWT         250 ms         • VBW         300 kHz         Mode           10 kBm         0 dBm         0         M         M         M           10 dBm         0 dBm         0         0         M         M           20 dBm         -02 -16.450 dBm</td> <td>Sweep 11[1] -36.64 dBm</td> <td>Ref Level         20.00 dBr           Att         30 d           ID dBm         01 3,860 c           0 dBm         -10 dBm           -10 dBm         -20 dBm</td> <td>8 SWT 250 ms • VB</td> <td>/ 300 kHz Mode Sweep</td> <td>-35.82 dBi</td>	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         kHz           Att         30 dB         SWT         250 ms         • VBW         300 kHz         Mode           10 kBm         0 dBm         0         M         M         M           10 dBm         0 dBm         0         0         M         M           20 dBm         -02 -16.450 dBm	Sweep 11[1] -36.64 dBm	Ref Level         20.00 dBr           Att         30 d           ID dBm         01 3,860 c           0 dBm         -10 dBm           -10 dBm         -20 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi
59 db	Ref Level         20.00         dBm         Offset         11.00         dB         RBW         100         Hz           Att         30 dB         SWT         250 ms         VBW         300 kHz         Mode           10 dBm         01         3.550 dsm         Mode         Mode         Mode           10 dBm         02         -16.450 dBm         Mode         Mode         Mode	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Level         20.00 dBr           It         30 d           It         10 dBm           It         10 dBm           It         -20 dBm           -30 dBm         -30 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi 20.218780 GH
70 dBm70 dBm	Ref Lovel 20.00 dBm         Offset 11.00 dB         Ref W 100 kHz         Mode           Att         30 dB         SWT         250 ms         VBW 300 kHz         Mode           1pk View         M         Mode         M         M         M           0 dBm         01 3.550 dBm         M         M         M         M           10 dBm         01 3.550 dBm         M         M         M         M           20 dBm         02 -16,450 dBm         M         M         M         M           40 dBm         M         M         M         M         M         M         M	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Level         20.00 dBr           It         30 d           It         10 dBm           It         10 dBm           It         -20 dBm           -30 dBm         -30 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dB 20.218780 GF
70 dBm70 dBm	Offset         11.00         db         RefW         100         Hz         Mode           Att         30 dB         SWT         250 ms         VBW         300 kHz         Mode           1Pk View         0         BWT         250 ms         VBW         300 kHz         Mode           10 dBm         0         3.550 dBm         0         0         Mode         Mode           10 dBm         0         3.550 dBm         0 <td>Sweep 11[1] -36.64 dBm 20.222690 GHz</td> <td>Ref Level         20.00 dBr           It         30 d           It         10 dBm           It         10 dBm           It         -20 dBm           -30 dBm         -30 dBm</td> <td>8 SWT 250 ms • VB</td> <td>/ 300 kHz Mode Sweep</td> <td>-35.82 dB 20.218780 GF</td>	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Level         20.00 dBr           It         30 d           It         10 dBm           It         10 dBm           It         -20 dBm           -30 dBm         -30 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dB 20.218780 GF
Start 30.0 MHz         32001 pts         Stop 25.0 GHz         Start 30.0 MHz         32001 pts         Stop 25.0 GHz	Ref Lovel 20.0.0 dBm         Offset 11.00 dB         RBW 100 kHz         Mode           Att         30 dB         SWT         250 ms         VBW 300 kHz         Mode           1 /k View         Mode         Mode         Mode         Mode         Mode           10 dBm         D1 3.550 dBm         Mode         Mode         Mode         Mode           10 dBm         D1 3.550 dBm         Mode	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Lovel 20.00 dBr           Att 30 d           IPk View           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -30 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi 20.218780 GH
	Ref Lovel 20.0.0 dBm         Offset 11.00 dB         RBW 100 kHz         Mode           Att         30 dB         SWT         250 ms         VBW 300 kHz         Mode           1 /k View         Mode         Mode         Mode         Mode         Mode           10 dBm         D1 3.550 dBm         Mode         Mode         Mode         Mode           10 dBm         D1 3.550 dBm         Mode	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Lovel 20.00 dBr           Att 30 d           IPk View           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -30 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi 20.218780 GH
	Ref Level         20.00 dBm         Offset         11.00 dB         RBW         100 kHz         Mode           Att         30 dB         SWT         250 ms         VBW         300 kHz         Mode           10 dBm         01 3.550 dBm         Mode         Mode         Mode         Mode           10 dBm         01 3.550 dBm         Mode         Mode         Mode         Mode           20 dBm         02 -16.450 dBm         Mode         Mode         Mode         Mode         Mode           20 dBm         02 -16.450 dBm         Mode	Sweep 11[1] -36.64 dBm 20.222690 GHz	Ref Level         20.00 dBr           IVE         30 d           IPE View         10 dBm           I0 dBm         01 3.860 c           -10 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-35.82 dBi 20.218780 GH
	Eef Level         20.00         Em         Offset         11.00         B         RBW 100         LHz         Mode           Att         30         BWT         250 ms         # VBW         300 kHz         Mode           10         BWT         250 ms         # VBW         300 kHz         Mode           10         Bm         01         3.550 dBm         M         M           0         dBm         01         3.550 dBm         M         M           10         dBm         01         3.550 dBm         M         M           10         dBm         01         3.550 dBm         M         M         M           20         dBm         02         -16,450 dBm         M         M         M         M           -20         dBm         02         -16,450 dBm         M	Sweep  11[1] -36.64 dBm 20.222690 GH2	Perf Lovel         20.00 dBr           IPk         30 d           IPk         10 dBm           10 dBm         01 3,860 c           -10 dBm	8 SWT 250 ms • VB	/ 300 kHz Mode Sweep	-95.82 dBr 20.218780 GH



## 3.7 Transmitter Radiated Unwanted Emissions

#### 3.7.1 Transmitter Radiated Unwanted Emissions Limit

	Restricted Band	Emissions Limit	
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Un-restricted Ban	d Emissions Limit
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
any 100 kHz outside the authorized frequency the maximum measured in-band peak PSD le Note 2: If the average output power procedure is used demonstrate compliance to requirements, the	n the peak conducted output power measured within band shall be attenuated by at least 20 dB relative to vel.

#### 3.7.2 Measuring Instruments

average PSD level.

Refer a test equipment and calibration data table in this test report.

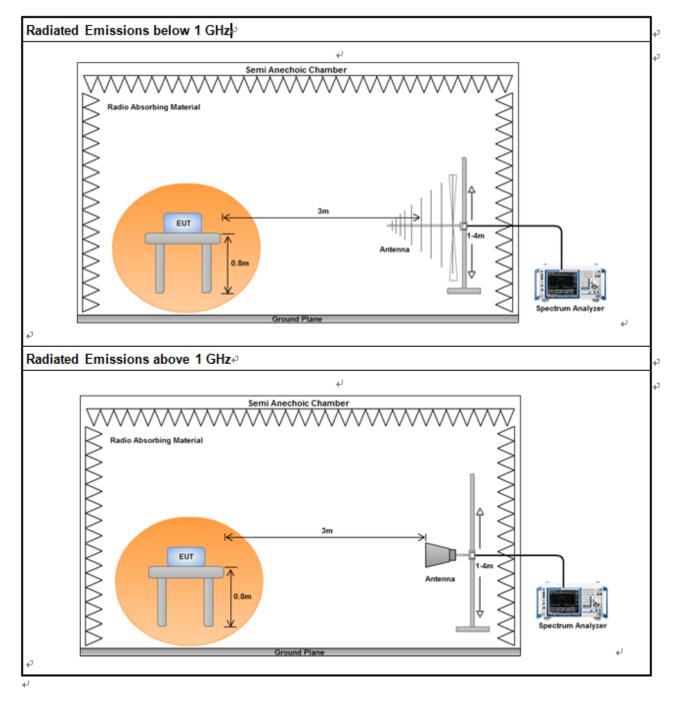


### 3.7.3 Test Procedures

		Test Method – General Information
$\boxtimes$	perfo equi extra dista	surements may be performed at a distance other than the limit distance provided they are not ormed in the near field and the emissions to be measured can be detected by the measurement pment. When performing measurements at a distance other than that specified, the results shall be apolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear ance for field-strength measurements, inverse of linear distance-squared for power-density surements).
$\boxtimes$	For	the transmitter unwanted emissions shall be measured using following options below:
	$\boxtimes$	Refer as FCC DA 00-0705, for spurious radiated emissions. The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log (dwell time/100 ms)
	$\square$	For unwanted emissions into non-restricted bands. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.
	$\square$	For unwanted emissions into restricted bands.
		□ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\ge$ 1/T, where T is pulse time.
		Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
$\boxtimes$	For	radiated measurement.
	$\square$	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.
	$\square$	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
	$\boxtimes$	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.



#### 3.7.4 Test Setup

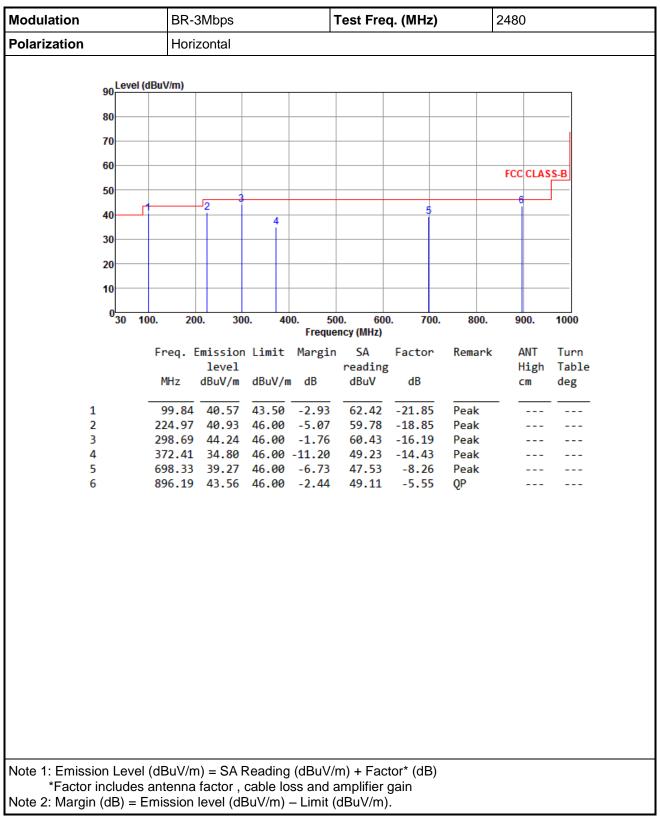


### 3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.



#### 3.7.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

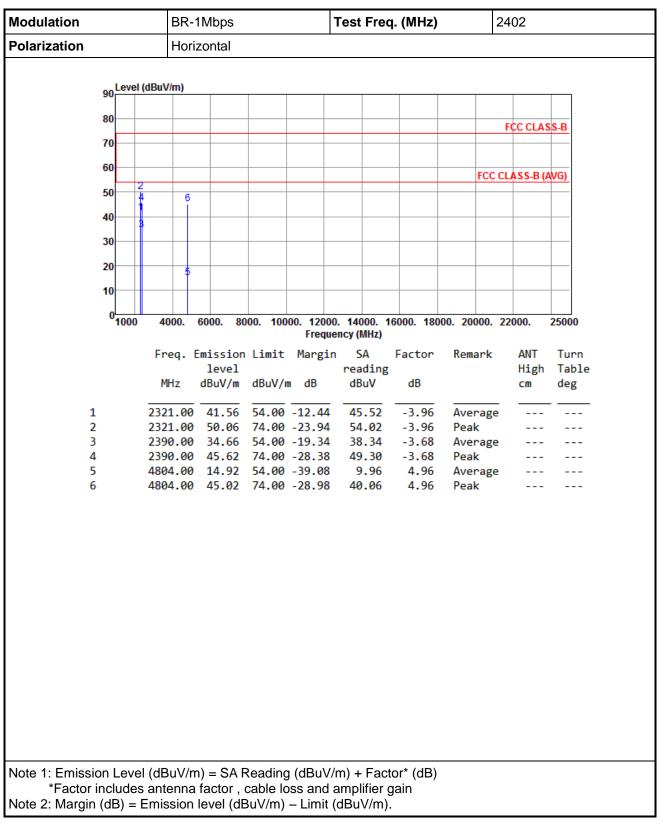




lodulation	BR-3	3Mbps		٦	Test Free	q. (MHz)		2441	
Polarization	Vert	ical							
90 Level	(dBuV/m)								
80									
00									
70									
60									
								FCC CLAS	S-B
50		3							<u>}</u>
40							5		
40	1	2	4						
30									
20									
10									
0									
0 <sup>1</sup> 30	100. 20	0. 30	0. 40		0. 60( ncy (MHz)	). 700.	800.	900.	1000
	Frea. I	mission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		level		0	reading			High	Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1		31.88				-21.85	Peak		
2	224.97	44.83	46.00		54.14 61.02	-18.85 -16.19	Peak QP		
4	398.60		46.00		48.25		Peak		
5	797.27		46.00		45.81	-6.80	Peak		
6		42.49			48.00		Peak		
lote 1: Emission Leve									
*Factor includes									
lote 2: Margin (dB) =	Emission	level (dE	3uV/m)∍	– Limit (	dBuV/m)				



#### 3.7.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for GFSK





Modulation				BR-	1Mbps			Te	est Fre	q. (MHz)		24	02	
Polarization			,	Vert	ical									
	90	Level	(dBuV/	m)										
	80												CC CLAS	C D
	70											r	UU ULAS	<u>5-D</u>
	60	4										FCC CL	ASS-B (A	WG)
	50	2	-	6										
	40													
	30													
	20													
				1										
	10													
	0	1000	40	00.	6000. 80	000. 100	00. 120	00.	14000.	16000. 180	00. 200	00. 22	2000.	25000
									cy (MHz)					
			Fre	eq.	Emission level	ı Limit	Marg		SA reading	Factor	Rema	rk	ANT High	Turn Table
			MH	lz	dBuV/m	dBuV/ı	m dB		dBuV	≤ dB			cm	deg
											-			
	1 2				36.76 47.42				40.72		Aver Peak			
	3				34.37				38.05		Aver			
	4				52.91				56.59 11.32		Peak			
	5 6				16.28 46.38				41.42		Aver Peak	_		
Note 1: Emiss														
Note 2: Margi					factor, level (df									
	i (ui	-, - '		51011		-a v/m)		. <sub>(</sub> u		<i>,</i> .				



Modulation	BK-	1Mbps			Test Fred	<b>ι. (MHz)</b>		2441	
Polarization	Hori	zontal							
Leve	l (dBuV/m)								
90									
80								FCC CLAS	S-B
70								Teo orn	
60									
60	2						FCC	CLASS-B (A	WG)
50	4	6							
40									
30									
20	3								
10									
0	4000		00 400	00 40000				22000	25000
0 <mark>1000</mark>	4000.	6000. 80	00. 100		. 14000. 1 ncy (MHz)	6000. 180	00. 20000.	22000.	25000
	Freq.	Emission	Limit	Margin		Factor	Remark	ANT	Turn
		level			reading			High	
	MHz	dBuV/m	aBuv/r	n ab	dBuV	dB		CM	deg
1	2360.00	43.25	54.00	-10.75	47.06	-3.81	Average		
2		51.98			55.79	-3.81	Peak		
3 4		15.07 45.17			9.95 40.05	5.12 5.12	Average Peak		
5		18.98			9.64	9.34	Average		
6	7323.00	49.08	74.00	-24.92		9.34	Peak		
Note 1: Emission Leve									
*Factor include		1							



Polarization 90 80 70 60 50	vel (dBu	Verti								
80 70 60	vel (dBu	V/m)								
80 70 60										
70 60										
60									FCC CLAS	S-B
L.										
L										
50	-		6					FCC	CLASS-B (A	WG)
	2	4								
40										
30										
20		3								
10										
0			6000. 80	00 400	00 40000	44000 4	000 400	00 20000	22000	25000
<sup>0</sup> 10	00 4	4000.	0000. 80	00. 100		. 14000. 1 ncy (MHz)	0000. 180	00. 20000.	22000.	25000
	F	req. E	mission	Limit	Margin		Factor	Remark	ANT	Turn
			level		10	reading			High	
		MHz	dBuV/m	aBuv/n	n ab	dBuV	dB		cm	deg
1	23	60.00	37.88	54.00	-16.12	41.69	-3.81	Average		
2			48.54			52.35	-3.81	Peak		
3 4			14.31 44.41			9.19 39.29	5.12 5.12	Average Peak	2	
5			18.81				9.34	Average	2	
6			48.91				9.34	Peak		
Note 1: Emission Le	evel (dl	BuV/m	i) = SA F	Reading	g (dBuV/	m) + Fact	or* (dB)			
*Factor includ Note 2: Margin (dB)	des an	tenna	factor,	cable lo	ss and a	amplifier g	gain			



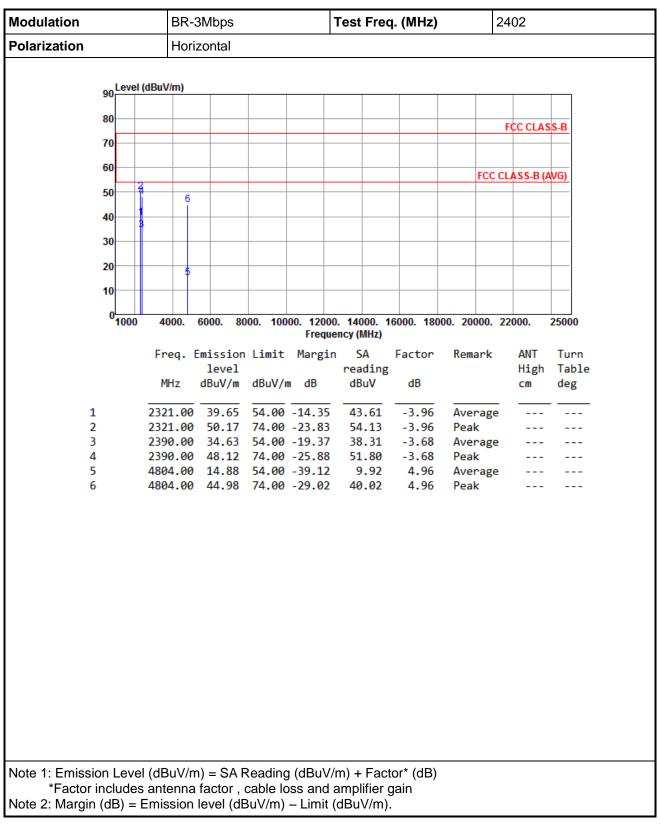
Polarization         Horizontal	Modulation				BR-	1Mbps	6			Т	est F	req	. (MHz)		2	480	
80       FCC CLASS-B         70       FCC CLASS-B         60       FGC CLASS-B         70       FGC CLASS-B         70       FGC CLASS-B         70       FGC CLASS-B         70       FGC CLASS-B </td <td>Polarization</td> <td></td> <td></td> <td>I</td> <td>Hori</td> <td>zontal</td> <td></td>	Polarization			I	Hori	zontal											
80       9			evel	(dBuV/	m)												
To       FCC CLASS-B         60       2       6       6         50       2       6       6         40       4       6       6         30       4       6       6         10       5       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       4       6       6         10       6       6       6         10       6       6       6         10       7       7       7         10       7       7       7         10       <		90		(ubut)													
70       6		80														FCC CLAS	S-B
1       2       6       1		70															
50       2       6       1		60															
40       5       1		50		2			6								FCC C	LASS-B (A	WG)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					4												
20       3       5       1		40					╈										
10       10       100       4000. 6000. 8000. 10000. 12000. 14000. 16000. 18000. 20000. 22000. 25000         Freq. Emission Limit Margin SA Factor Remark ANT Turn level reading MHz dBuV/m dB dBuV dB         1       2483.50       35.73       54.00       -18.27       39.03       -3.30       Average           2       2483.50       49.71       74.00       -24.29       53.01       -3.30       Average           3       4960.00       15.84       54.00       -38.16       10.56       5.28       Average          4       4960.00       45.94       74.00       -28.06       40.66       5.28       Peak          5       7440.00       19.67       54.00       -34.33       10.08       9.59       Average		30					+										
0 1000 4000. 6000. 8000. 10000. 12000. 14000. 16000. 18000. 20000. 22000. 25000 Frequency (MHz) Freq. Emission Limit Margin SA Factor Remark ANT Turn level reading High Table MHz dBuV/m dBuV/m dB dBuV dB cm deg 1 2483.50 35.73 54.00 -18.27 39.03 -3.30 Average 2 2483.50 49.71 74.00 -24.29 53.01 -3.30 Peak 3 4960.00 15.84 54.00 -38.16 10.56 5.28 Average 4 4960.00 45.94 74.00 -28.06 40.66 5.28 Peak 5 7440.00 19.67 54.00 -34.33 10.08 9.59 Average		20			3		5										
0 1000 4000. 6000. 8000. 10000. 12000. 14000. 16000. 18000. 20000. 22000. 25000 Frequency (MHz) Freq. Emission Limit Margin SA Factor Remark ANT Turn level reading dBuV dB cm deg 1 2483.50 35.73 54.00 -18.27 39.03 -3.30 Average 2 2483.50 49.71 74.00 -24.29 53.01 -3.30 Peak 3 4960.00 15.84 54.00 -38.16 10.56 5.28 Average 4 4960.00 45.94 74.00 -28.06 40.66 5.28 Peak 5 7440.00 19.67 54.00 -34.33 10.08 9.59 Average		10															
Frequency (MHZ)         Frequency (MHZ)         Freq. Emission Limit Margin SA level       Factor Remark ANT Turn High Table cm         1																	
Freq. Emission Limit Margin level       SA reading dBuV       Factor reading dBuV       Remark dBuV       ANT High deg       Turn Table deg         1       2483.50       35.73       54.00       -18.27       39.03       -3.30       Average <td></td> <td>0</td> <td>1000</td> <td>400</td> <td>00.</td> <td>6000.</td> <td>80</td> <td>00. 100</td> <td></td> <td></td> <td></td> <td></td> <td>6000. 180</td> <td>00. 20</td> <td>000. 2</td> <td>2000.</td> <td>25000</td>		0	1000	400	00.	6000.	80	00. 100					6000. 180	00. 20	000. 2	2000.	25000
level         reading         High         Table           MHz         dBuV/m         dBuV/m         dB         dBuV         dB         cm         deg           1         2483.50         35.73         54.00         -18.27         39.03         -3.30         Average             2         2483.50         49.71         74.00         -24.29         53.01         -3.30         Peak             3         4960.00         15.84         54.00         -38.16         10.56         5.28         Average             4         4960.00         45.94         74.00         -28.06         40.66         5.28         Peak             5         7440.00         19.67         54.00         -34.33         10.08         9.59         Average				Eno	a	Fmicci	on	limit					Factor	Rom	ank	ΔΝΤ	Turn
1       2483.50       35.73       54.00       -18.27       39.03       -3.30       Average           2       2483.50       49.71       74.00       -24.29       53.01       -3.30       Peak           3       4960.00       15.84       54.00       -38.16       10.56       5.28       Average           4       4960.00       45.94       74.00       -28.06       40.66       5.28       Peak           5       7440.00       19.67       54.00       -34.33       10.08       9.59       Average					4.				1101 6				i ac coi	i cui			
2       2483.50       49.71       74.00       -24.29       53.01       -3.30       Peak           3       4960.00       15.84       54.00       -38.16       10.56       5.28       Average           4       4960.00       45.94       74.00       -28.06       40.66       5.28       Peak           5       7440.00       19.67       54.00       -34.33       10.08       9.59       Average				MH	z	dBuV/	m	dBuV/r	n dB		dBu\	/	dB			cm	deg
2       2483.50       49.71       74.00       -24.29       53.01       -3.30       Peak           3       4960.00       15.84       54.00       -38.16       10.56       5.28       Average           4       4960.00       45.94       74.00       -28.06       40.66       5.28       Peak           5       7440.00       19.67       54.00       -34.33       10.08       9.59       Average	1	L		2483	.50	35.7	3	54.00	-18.2	7	39.6	93	-3.30	Ave	rage		
4 4960.00 45.94 74.00 -28.06 40.66 5.28 Peak 5 7440.00 19.67 54.00 -34.33 10.08 9.59 Average											53.6	91	-3.30	Pea	k		
5 7440.00 19.67 54.00 -34.33 10.08 9.59 Average															_		
6 7440.00 49.77 74.00 -24.23 40.18 9.59 Peak																	
	6	5		7440	.00	49.7	7	74.00	-24.2	3	40.1	18	9.59	Pea	k		
		a.r. 1			1110	<u>.</u>	A F	. مالير	. (	11-	a) - E	- ct					
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain	1 20101	1101	uuco		סוווי	iuuuu	, ι	յանին լլ	ວວαເຫ	սզ		ີ່ປ	4111				



Modulation			E	3R-1	Mbps			Test Fred	q. (MHz)		2480		
Polarization			١	/ertio	cal								
			(dDu\//r	nì									
	90	Lever	(dBuV/n	,									
	80										FCC	CLAS	S-B
	70												
	60												
			2		6					FC	C CLAS	S-B (A	WG)
	50	1											
	40			4									
	30												
	20				5								
	10												
	0	1000	400	0. (	5000. 80	00. 100		0. 14000. 1	6000. 180	00. 20000	. 22000	).	25000
							-	ency (MHz)					
			Fre	q.E	mission level	Limit	Margi	n SA reading	Factor	Remark		NT igh	Turn Table
			MH	z	dBuV/m	dBuV/n	n dB	dBuV	dB			m	deg
	1		2483	.50	35.32	54.00	-18.68	38.62	-3.30	Averag	ge –		
	2						-24.78	52.52	-3.30	Peak			
	3 4						-38.76 -38.66	9.96 30.06	5.28 5.28	Averag Peak	ge		
	5						-34.45		9.59		ge		
	6		7440	.00	49.65	74.00	-24.35	40.06	9.59	Peak			
Note 1: Emiss	ion L	eve	l (dBu	V/m	) = SA F	Readinc	dBuV	(m) + Fact	or* (dB)				
								amplifier g					



#### 3.7.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 8DPSK





Modulation			E	BR-3	BMbps			Te	est Free	q. (MHz)		24	102	
Polarization			١	/erti	cal									
	90	evel (	dBuV/ı	n)										
	80	_											CC CLAS	C D
	70												UL ULAS	<u></u>
	60	_										FCC CL	ASS-B (A	WG)
	50	24		6										
	40			_										
	30	$- \parallel$		_										
	20													
				Ĩ										
	10													
	0	000	400	)0.	6000. 80	00. 100	00. 120	00.	14000. 1	16000. 180	00. 200	00. 22	2000.	25000
									cy (MHz)					
			Fre	q.E	mission level	Limit	Marg		SA reading	Factor	Rema	ark	ANT High	Turn Table
			мн	z	dBuV/m	dBuV/ı	m dB		dBuV	dB			cm	deg
1					36.19 48.92				40.15 52.88	-3.96 -3.96	Aver Peal	rage		
3					34.60				38.28	-3.68		rage		
4					49.31				52.99	-3.68	Peal			
5					16.56 46.66				11.60 41.70	4.96 4.96	Peal	rage (		
Note 1: Emissio														
*Factor i Note 2: Margin														
NOLE Z. MaryIII	(uD	, – ∟				, a v/m)		u (u	bu v/m)					



Modulation		BR-	3Mbps		٦	Fest Free	η. (MHz)		2441	
Polarization		Hori	zontal							
	Level (d	Bu\//m)								
90	Lever (u	buvilij								
80									FCC CLA	
70									FUC ULA	3 <u>3-D</u>
60								FCC	CLASS-B (	AVG)
50		4	6							
40										
30										
50										
20		3								+
10			_							
C										
	1000	4000.	6000. 80	00. 100		. 14000. 1 ncy (MHz)	6000. 180	00. 20000.	22000.	25000
		Freq. I	Emission	Limit	Margin		Factor	Remark		Turn
			level			reading			High	
		MHz	dBuV/m	dBuV/n	n dB	dBuV	dB		CM	deg
1	-	2360.00	42.34	54.00	-11.66	46.15	-3.81	Average	e	
2			51.09			54.90	-3.81	Peak		
3			15.34 45.44			10.22 40.32	5.12 5.12	Average Peak	e	
5			19.11			9.77	9.34	Average	e	
6		7323.00	49.21	74.00	-24.79		9.34	Peak		
Note 1: Emission	Level	(dBuV/n	n) = SA F	Reading	∫(dBuV/r	n) + Fact	or* (dB)			
			factor, o							



Modulation				BR-3Mbps         Test Freq. (MHz)         2441												
Polarization				Vertical												
	90	Level	(dBuV/	m)												
	80															Se D
	70														FCC CLAS	<u>5-B</u>
	60					_								FCC CI	ASS-B (A	WG)
	50		2	4		6										
	40					_										
	30															
	20					5										
				3												
	10															
	0	1000	40	00.	6000.	80	00. 100	00. 12	000.	1400	0. 10	6000. <b>1</b> 80	00. 20	000. 2	2000.	25000
										ncy (Mł						
			Fre	٩.	Emiss lev		Limit	Marg		SA read:		Factor	Rem	ark	ANT High	Turn Table
			MH	łz			dBuV/r	m dB		dBu	-	dB			cm	deg
									_							
1							54.00 74.00			41. 51.		-3.81 -3.81	Ave Pea	rage k		
3							54.00			9.4	43	5.12		rage		
4							74.00			39.		5.12	Pea			
5							54.00 74.00					9.34 9.34	Pea	rage k		
											_					
Note 1: Emissi																
*Factor Note 2: Margin																
		-,			10.40	(uL			. (0							



Modulation			BR-3Mbps Test Freq. (MHz) 2480											
Polarization	Но	Horizontal												
	Loval (d	Du\//m)												
90	Level (d	BUV/III)												
80												F	CC CLAS	S-B
70														
60														
	2			6								FCC CL	ASS-B(A	WG)
50			4											
40														
30														
20			3	_5										
10														
	1000	4000.	6000	. 80	00. 100			14000. cy (MHz)		0. 180	00. 200	000. 22	2000.	25000
		Freq.	Emis	sion	Limit	Marg	in	SA	Fa	ctor	Rema	ark	ANT	Turn
				vel	10.111	10		readin	-	40			High	
		MHz	abu	v/m	dBuV/r	n ab		dBuV		dB			CM	deg
1					54.00			39.33		3.30		rage		
2 3					74.00 54.00			53.36 10.35		3.30	Peal Ave	c nage		
4	4	4960.0	0 45	.73	74.00	-28.2	7	40.45	5	5.28	Peal	< _		
5					54.00 74.00			9.78		9.59 9.59	Ave Peal	rage		
0		/440.0	0 49	.4/	74.00	-24.5		59.00	,	9.39	rea			
		, ID		<u> </u>		/ I= -		、 <u> </u>						
Note 1: Emission					Reading cable lo									
^Lactor inc						പാര പ്വി(	1 0		പപ					



Modulation	BR-	BR-3MbpsTest Freq. (MHz)2480									
Polarization	Ver	Vertical									
Leve	l (dBuV/m)										
90											
80								FCC CLAS	SS-B		
70											
60											
	2	6					FCC	CLASS-B (	WG)		
50	1 4										
40	1										
30											
20		5									
20	3										
10									+		
0	4000.	6000. 80	00 100	00 12000	14000 1	6000 180	00. 20000.	22000	25000		
1000	4000.	0000. 00	. 100		ncy (MHz)	0000. 100	20000.	22000.	23000		
	Freq.	Emission	Limit	Margin		Factor	Remark		Turn		
	MHz	level dBuV/m	JD. 1/1-	ан .	reading dBuV	dB		High			
	mnz	ubuv/m	ubuv/i	I UD	ubuv	UD		CM	deg		
1		35.56			38.86	-3.30	Average	2			
2		49.15			52.45	-3.30	Peak				
3 4		15.33 45.43			10.05 40.15	5.28 5.28	Average Peak	2			
5		19.72				9.59	Average	e			
6	7440.00	49.82	74.00	-24.18	40.23	9.59	Peak				
Note 1: Emission Leve		~)^ /	2004100	(dD.)//-	$n \to \Gamma_{n+1}$	or* ( dD)					



#### **Test Equipment and Calibration Data** 4

Test Item	Conducted Emission										
Test Site	Site Conduction room 1 / (CO01-WS)										
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until						
EMC Receiver	R&S	ESCS 30	100169	Oct. 15, 2013	Oct. 14, 2014						
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 23, 2013	Nov. 22, 2014						
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 04, 2013	Dec. 03, 2014						
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Apr. 23, 2014	Apr. 22, 2015						
50 ohm terminal (Support Unit)	NA	50	04	Apr. 18, 2014	Apr. 17, 2015						
lote: Calibration Inte	rval of instruments liste	d above is one year.									

Test Item	RF Conducted									
Test Site	(TH01-HY)									
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until					
Spectrum Analyzer	R&S	FSV 40	101013	Jan. 25, 2014	Jan. 24, 2015					
Power Sensor	Anritsu	MA2411B	0917017	Jan. 28, 2014	Jan. 27, 2015					
Power Meter	Anritsu	ML2495A	0949003	Jan. 28, 2014	Jan. 27, 2015					
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	Dec. 02, 2013	Dec. 01, 2014					
DC Power Source	G.W.	GPC-6030D	C671845	Jul. 26, 2014	Jul. 25, 2015					
Note: Calibration Inte	rval of instruments liste	d above is one year.								

Test Item	Radiated Emission										
Test Site	966 chamber1 / (03CH	966 chamber1 / (03CH01-WS)									
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until						
Spectrum Analyzer	R&S	FSV40	101498	Jan. 25, 2014	Jan. 24, 2015						
Receiver	R&S	ESR3	101658	Jan. 10, 2014	Jan. 09, 2015						
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jan. 02, 2014	Jan. 01, 2015						
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 13, 2014	Feb. 12, 2015						
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014						
Preamplifier	Burgeon	BPA-530	SN:100219	Nov. 28, 2013	Nov. 27, 2014						
Preamplifier	Agilent	83017A	MY39501308	Dec. 16, 2013	Dec. 15, 2014						
Preamplifier	WM	TF-130N-R1	923365	Oct. 23, 2013	Oct. 22, 2014						
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 16, 2013	Dec. 15, 2014						
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 16, 2013	Dec. 15, 2014						
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 16, 2013	Dec. 15, 2014						
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 16, 2013	Dec. 15, 2014						
Note: Calibration Inter	rval of instruments listed	d above is one year.	· · ·								

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014				
Note: Calibration Interval of instruments listed above is two year.									