

(1000MHz-18000MHz)

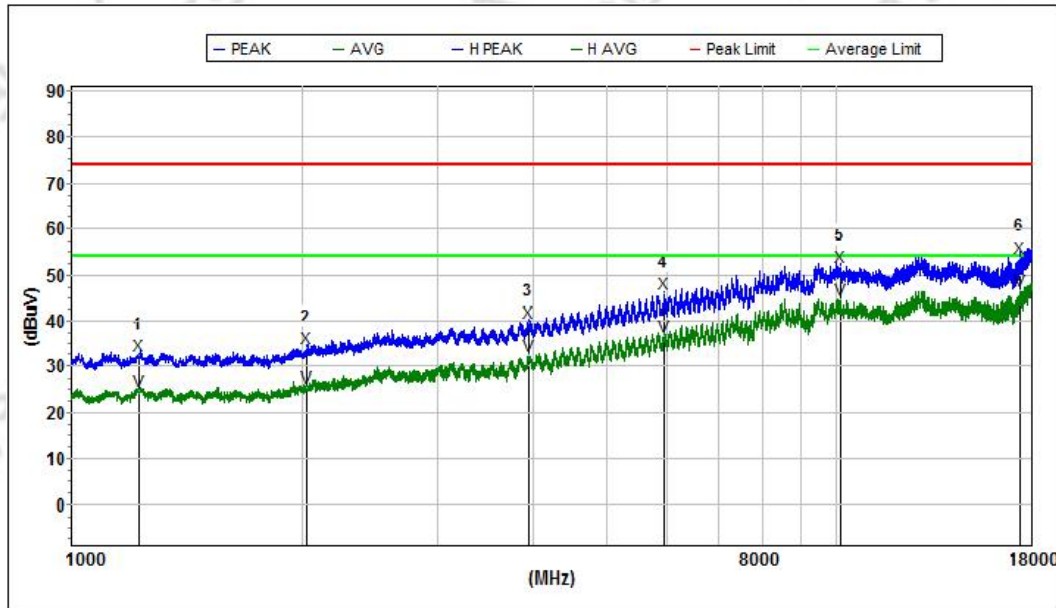
Temperature:	25°C	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 3		

Remark:

21. Margin = Result (Result =Reading + Factor)-Limit

22. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2480 Horizontal



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dB uV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1224.070162	32.5	74.0	41.5	25.7	60.9	2.3	H
2	2030.213745	34.0	74.0	40.0	26.7	60.9	2.7	H
3	3963.100000	39.8	74.0	34.2	30.8	58.5	3.3	H
4	5939.350000	45.9	74.0	28.1	34.0	58.1	4.1	H
5	10097.550000	51.7	74.0	22.3	38.6	60.4	5.4	H
6	17378.650000	53.8	74.0	20.2	39.0	58.8	6.9	H
Avg								
1	1224.070162	25.0	54.0	29.0	25.7	60.9	2.3	H
2	2030.213745	25.4	54.0	28.6	26.7	60.9	2.7	H
3	3963.100000	32.4	54.0	21.6	30.8	58.5	3.3	H
4	5939.350000	36.7	54.0	17.3	34.0	58.1	4.1	H
5	10097.550000	44.7	54.0	9.3	38.6	60.4	5.4	H
6	17378.650000	46.6	54.0	7.4	39.0	58.8	6.9	H

(1000MHz-18000MHz)

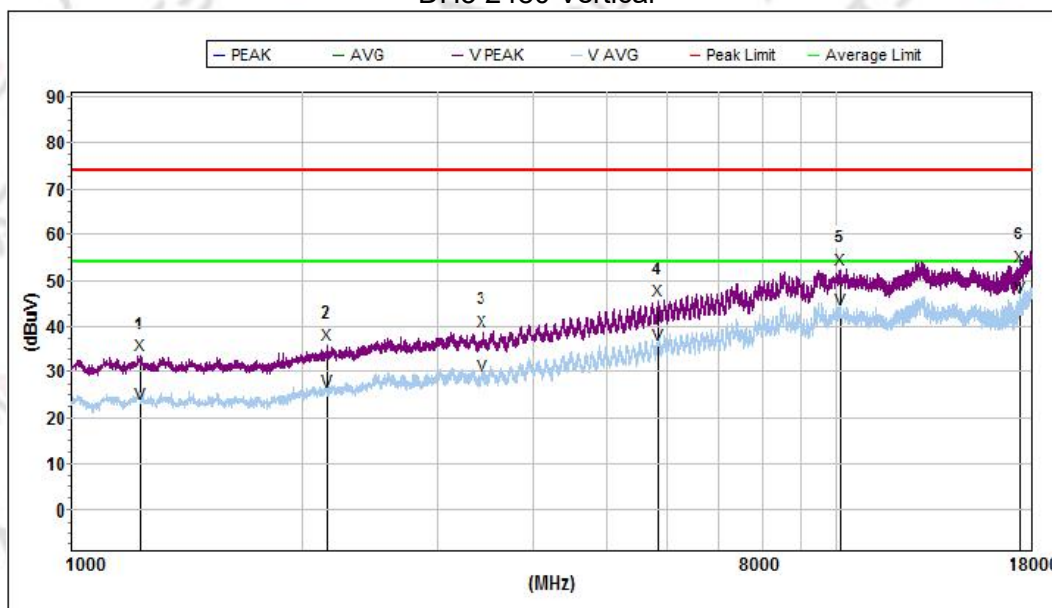
Temperature:	25°C	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 3		

Remark:

23. Margin = Result (Result =Reading + Factor)-Limit

24. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2480 Vertical



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1226.950000	33.7	74.0	40.3	25.8	60.9	2.3	V
2	2159.400000	36.2	74.0	37.8	27.2	60.7	2.7	V
3	3441.200000	39.0	74.0	35.0	29.5	58.5	3.1	V
4	5839.050000	45.7	74.0	28.3	33.9	58.1	4.1	V
5	10107.750000	52.4	74.0	21.6	38.6	60.4	5.4	V
6	17376.950000	53.1	74.0	20.9	39.0	58.8	6.9	V
Avg								
1	1226.950000	23.4	54.0	30.6	25.8	60.9	2.3	V
2	2159.400000	26.0	54.0	28.0	27.2	60.7	2.7	V
3	3441.200000	29.1	54.0	24.9	29.5	58.5	3.1	V
4	5839.050000	36.2	54.0	17.8	33.9	58.1	4.1	V
5	10107.750000	43.6	54.0	10.4	38.6	60.4	5.4	V
6	17376.950000	46.4	54.0	7.6	39.0	58.8	6.9	V

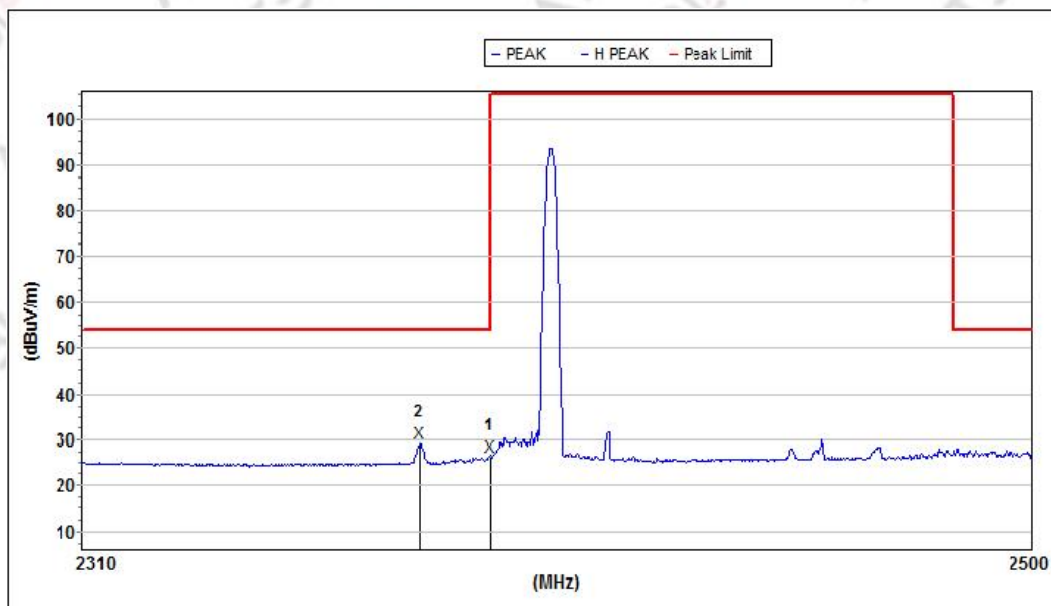
Note: 1.All TX Mode, the worst case is mode1&2&3, only show the worst case.

2.Other 18G-25G Emission detected are more than 20dB below the limit.

3.2.6 TEST RESULTS (BAND EDGE REQUIREMENTS)

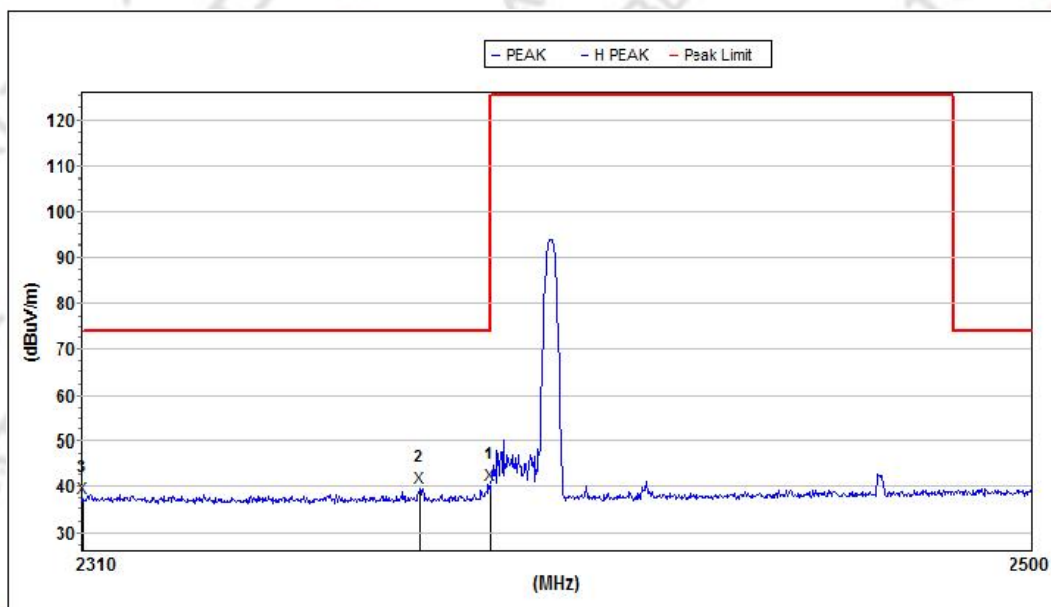
DH5-Low

Horizontal



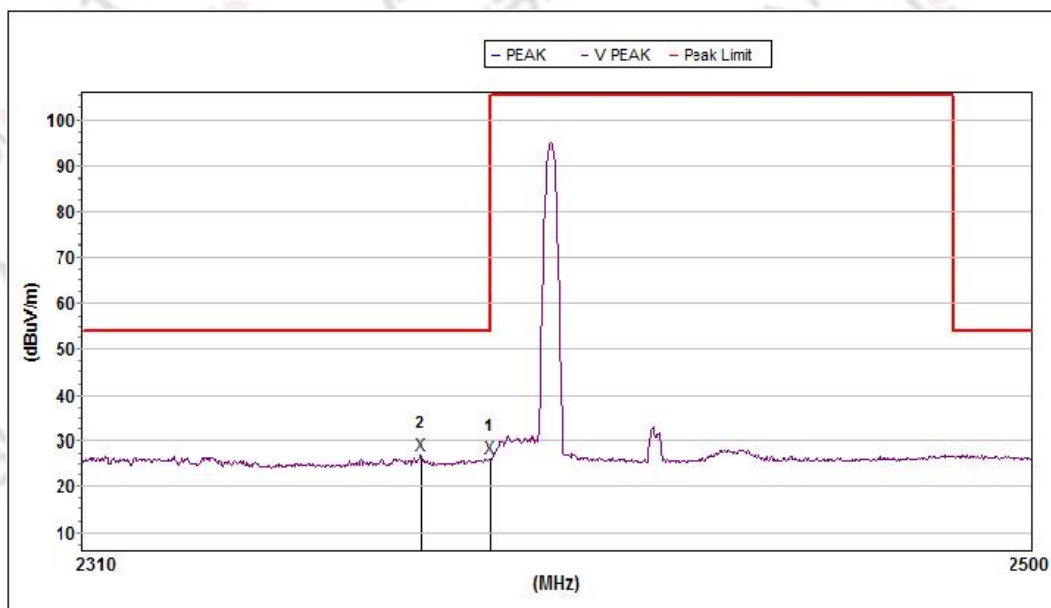
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2390.000000	26.4	54.0	27.6	27.3	59.6	2.8	H
2	2375.925169	29.3	54.0	24.7	27.3	59.6	2.8	H

Horizontal



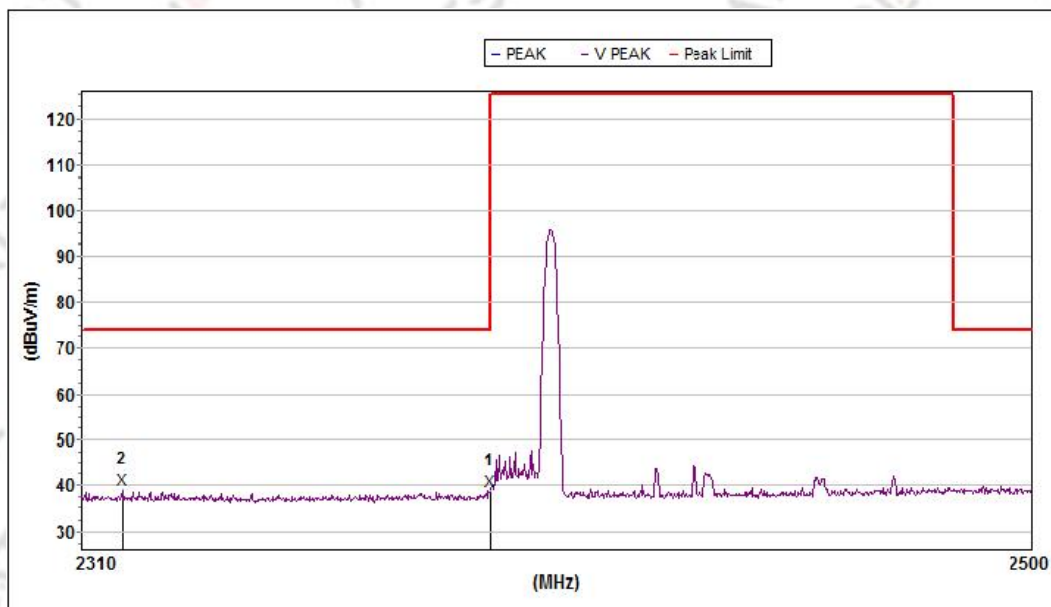
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2390.000000	40.5	74.0	33.5	27.3	59.6	2.8	H
2	2375.925169	39.7	74.0	34.3	27.3	59.6	2.8	H

Vertical



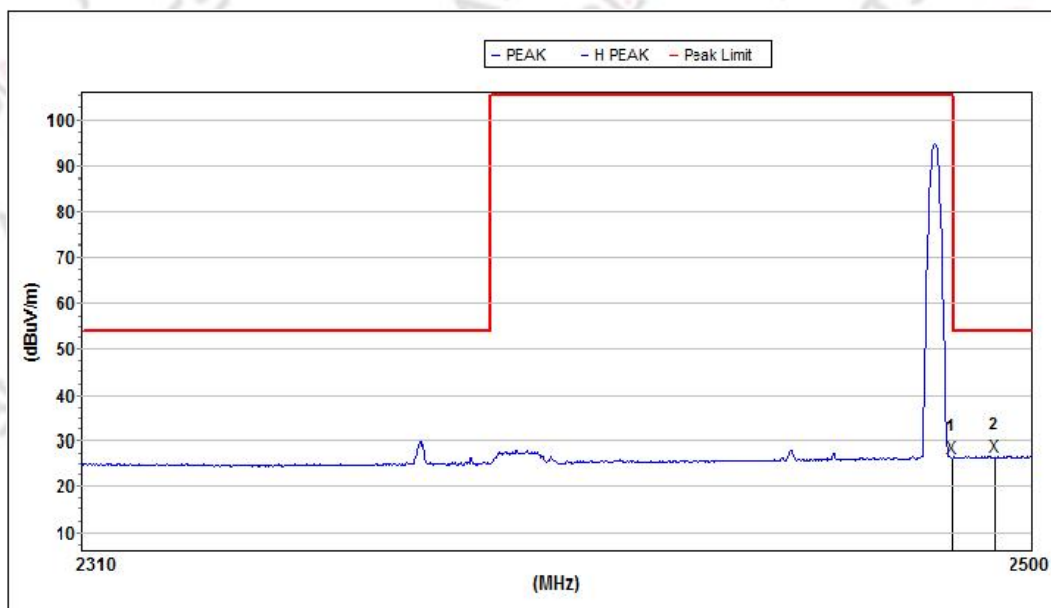
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2390.000000	26.4	54.0	27.6	27.3	59.6	2.8	V
2	2376.112977	27.0	54.0	27.0	27.3	59.6	2.8	V

Vertical



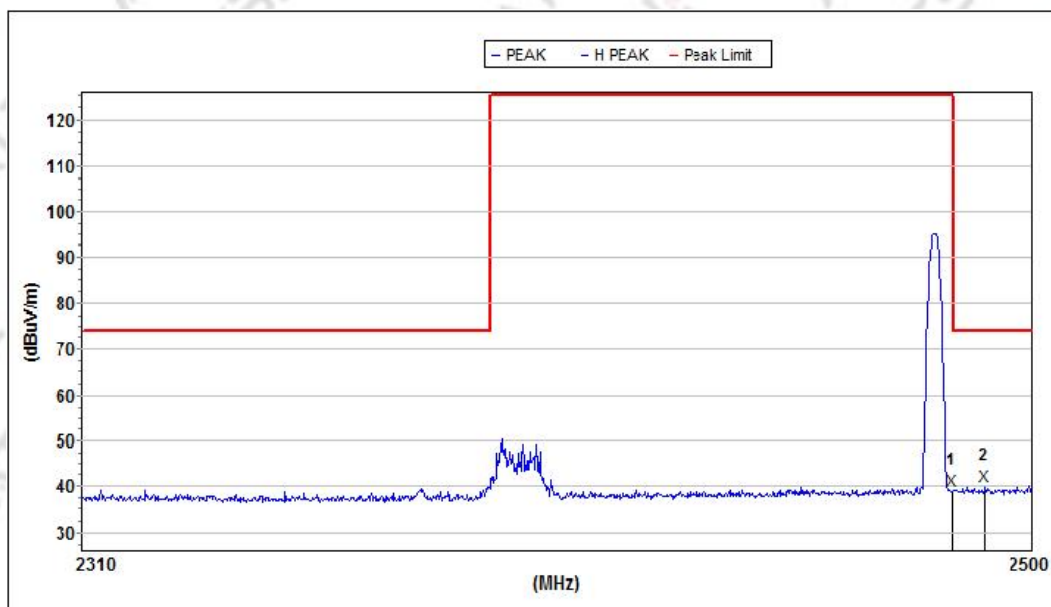
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2390.000000	38.7	74.0	35.3	27.3	59.5	2.8	V
2	2317.681516	39.0	74.0	35.0	27.2	59.9	2.8	V

DH5-High Horizontal



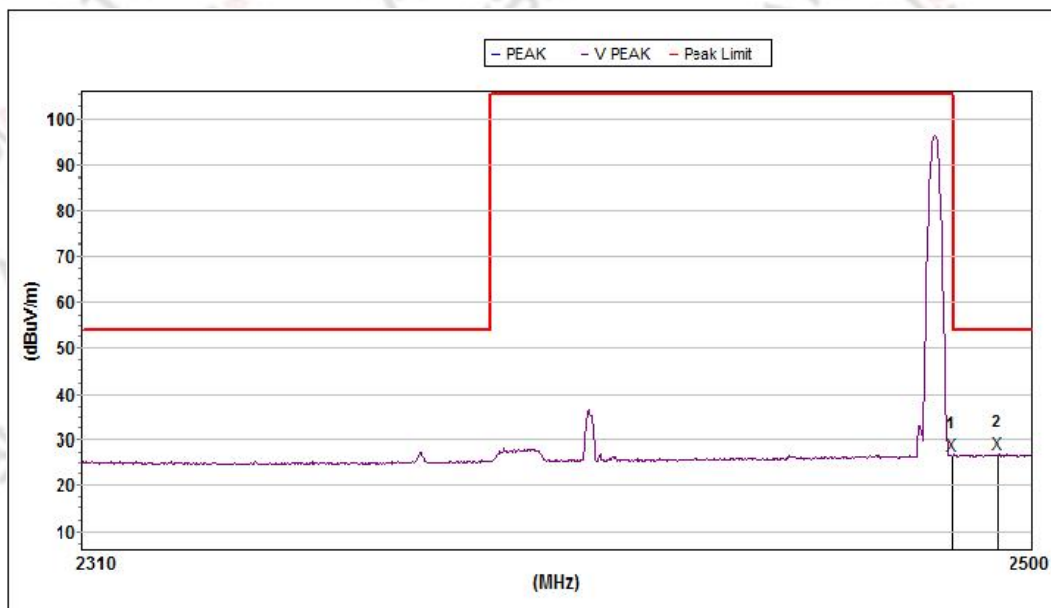
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2483.501000	26.5	54.0	27.5	27.7	58.9	2.8	H
2	2492.108162	26.7	54.0	27.3	27.7	58.8	2.8	H

Horizontal



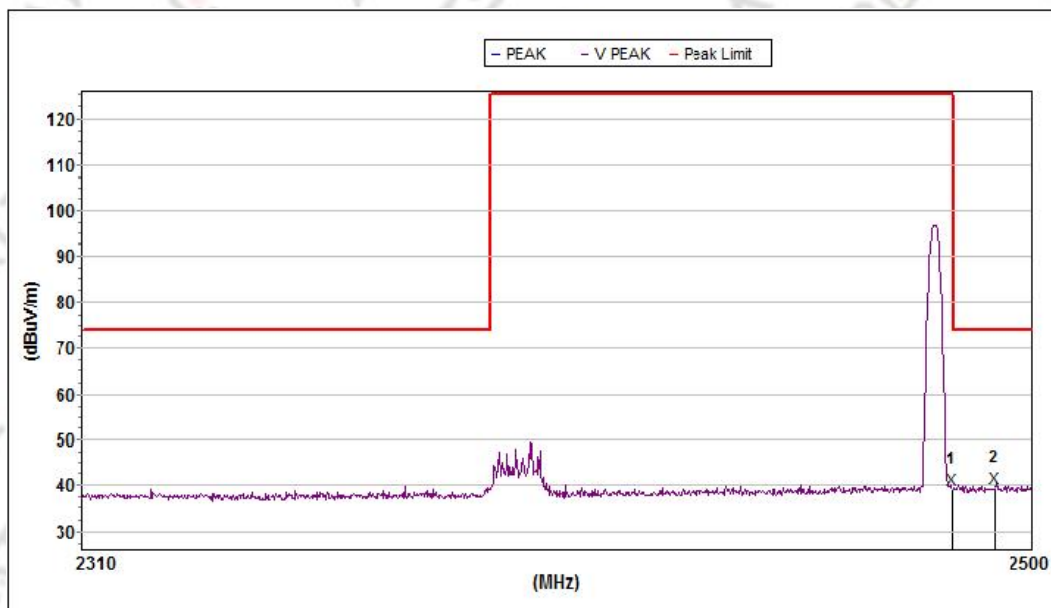
Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2483.501000	39.1	74.0	34.9	27.7	58.9	2.8	H
2	2490.139098	40.1	74.0	33.9	27.7	58.9	2.8	H

Vertical



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
AVG								
1	2483.501000	26.6	54.0	27.4	27.7	58.9	2.8	V
2	2492.896223	27.0	54.0	27.0	27.7	58.8	2.8	V

Vertical



Mk.	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	2483.501000	39.0	74.0	35.0	27.6	58.9	2.8	V
2	2492.305154	39.6	74.0	34.4	27.7	58.9	2.8	V

Note: 1.All mode all have been tested, the worst case is DH5, only show the worst case.

4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 LIMIT

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 kHz/300 kHz
Trace-Mode:	Max hold

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2300 – 2407 MHz Upper Band Edge: 2475 – 2500 MHz
RB / VB (emission in restricted band)	100 kHz/300 kHz
Trace-Mode:	Max hold

For Hopping Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2300– 2403 MHz Upper Band Edge: 2479 – 2500 MHz
RB / VB (emission in restricted band)	100 kHz/300 kHz
Trace-Mode:	Max hold



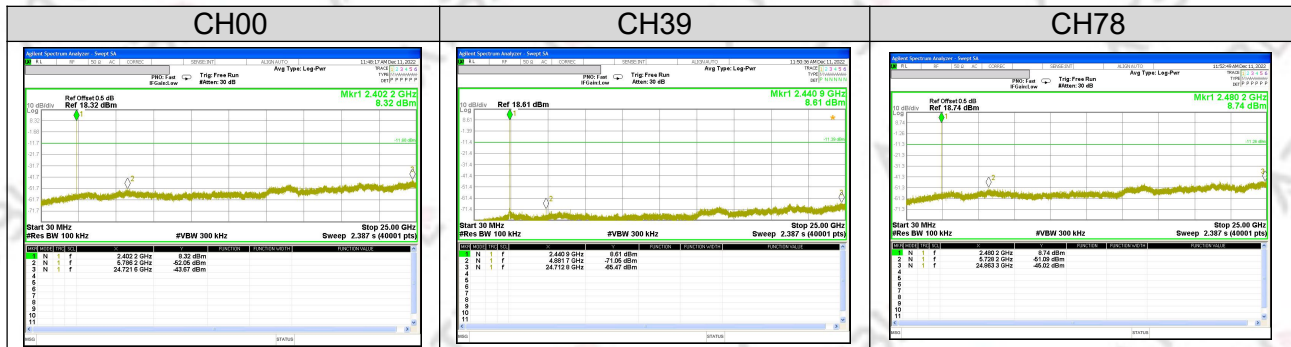
The EUT is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Tune the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, the span is set to be greater than RBW.

4.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

4.5 TEST RESULTS

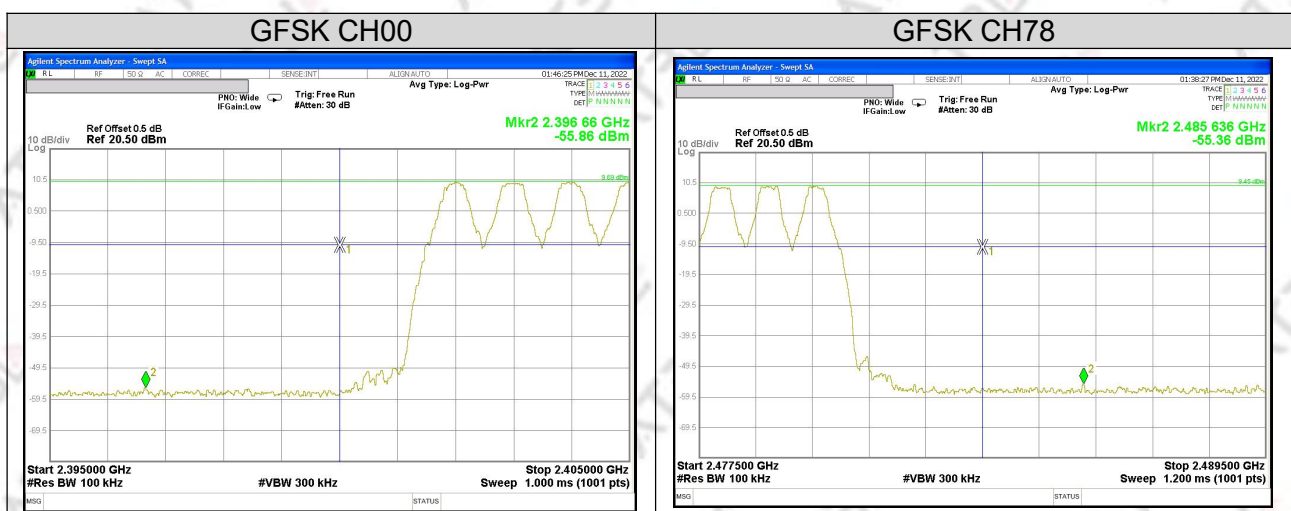
Temperature:	25°C	Relative Humidity:	50%
Test Mode:	GFSK(1Mbps)-00/39/78 CH	Test Voltage:	DC 19V



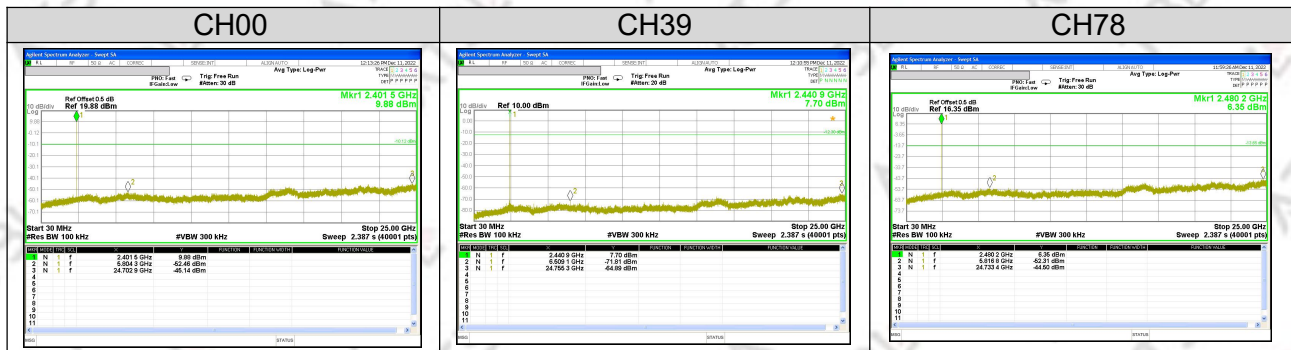
For Band edge(it's also the reference level for conducted spurious emission)



For Hopping Band edge



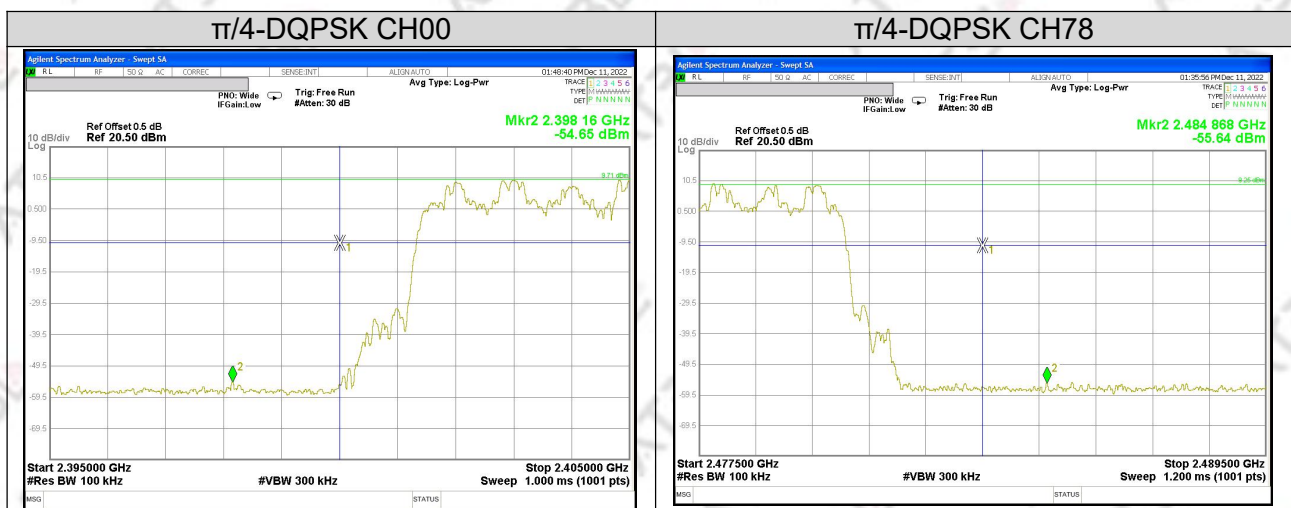
Temperature:	25°C	Relative Humidity:	50%
Test Mode:	$\pi/4$ -DQPSK(2Mbps)– 00/39/78 CH	Test Voltage:	DC 19V



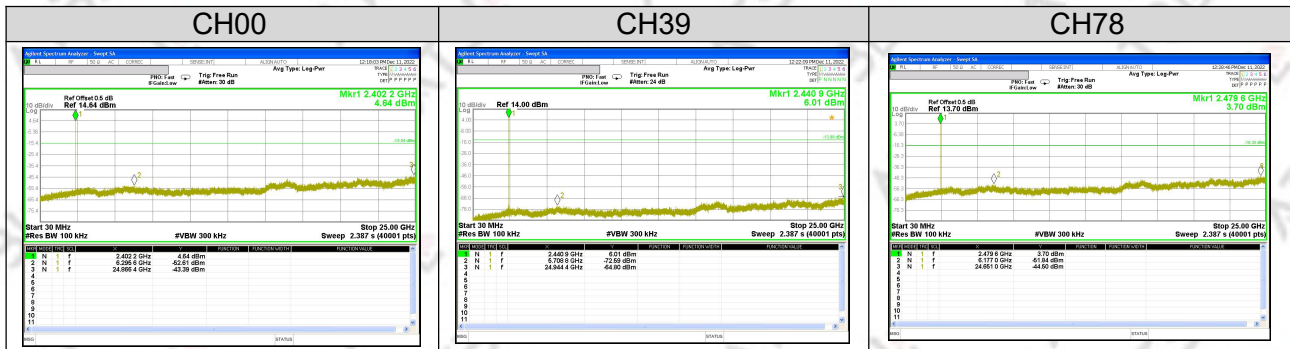
For Band edge(it's also the reference level for conducted spurious emission)



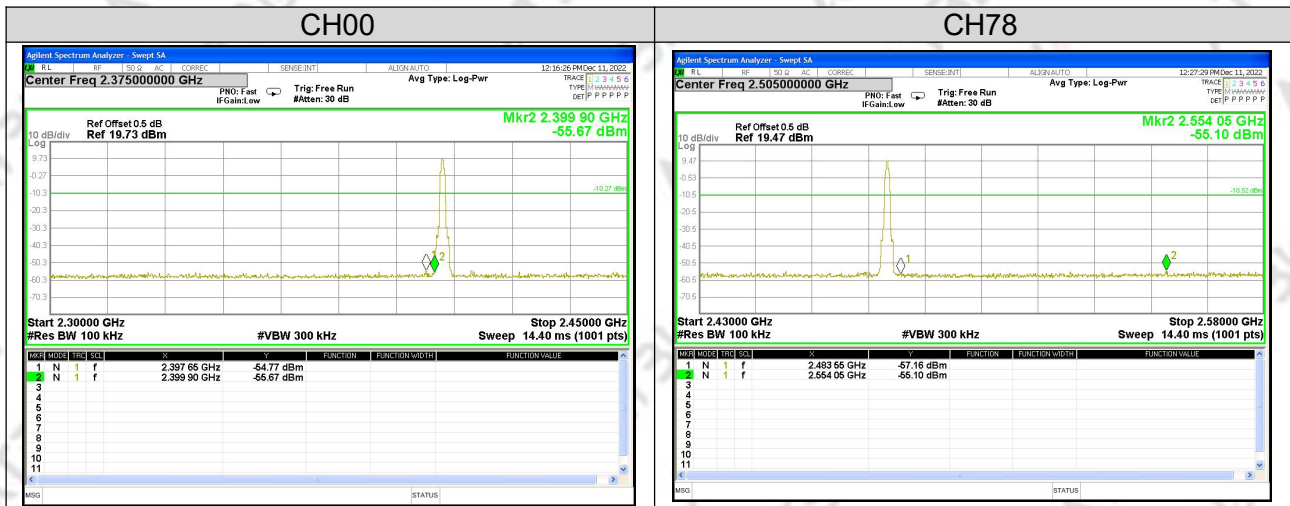
For Hopping Band edge



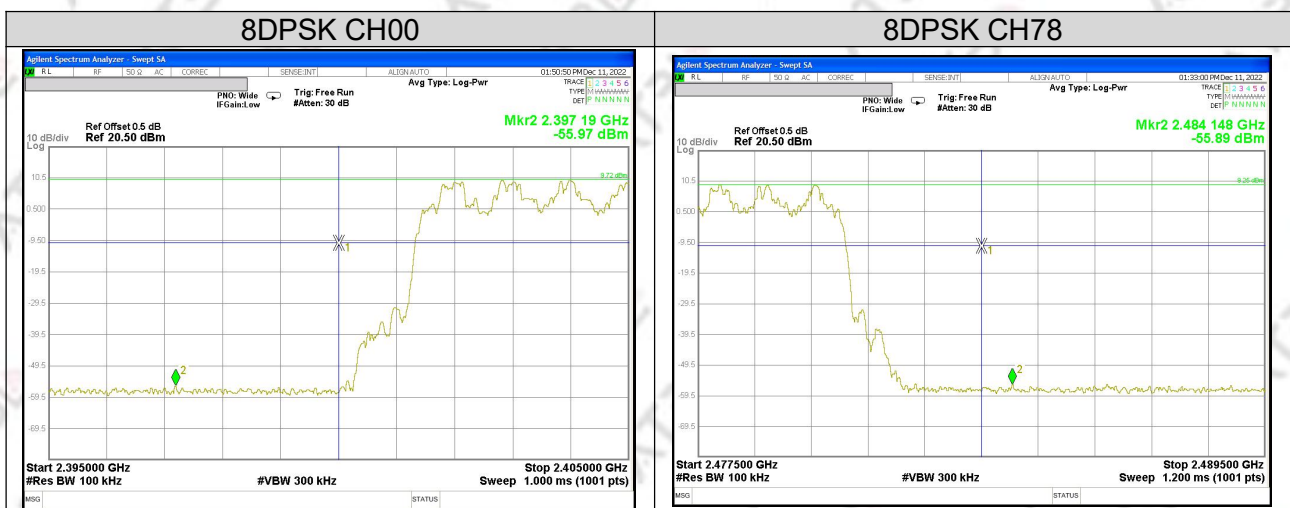
Temperature:	25°C	Relative Humidity:	50%
Test Mode:	8DPSK(3Mbps) -00/39/78 CH	Test Voltage:	DC 19V



For Band edge(it's also the reference level for conducted spurious emission)



For Hopping Band edge



5. NUMBER OF HOPPING CHANNEL

5.1 LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(1)(iii)	Number of Hopping Channel	≥ 15	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating FrequencyRange
RB	300kHz
VB	300kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 300kHz, VBW=300kHz, Sweep time = Auto.

5.3 TEST SETUP



5.4 EUT OPERATION CONDITIONS

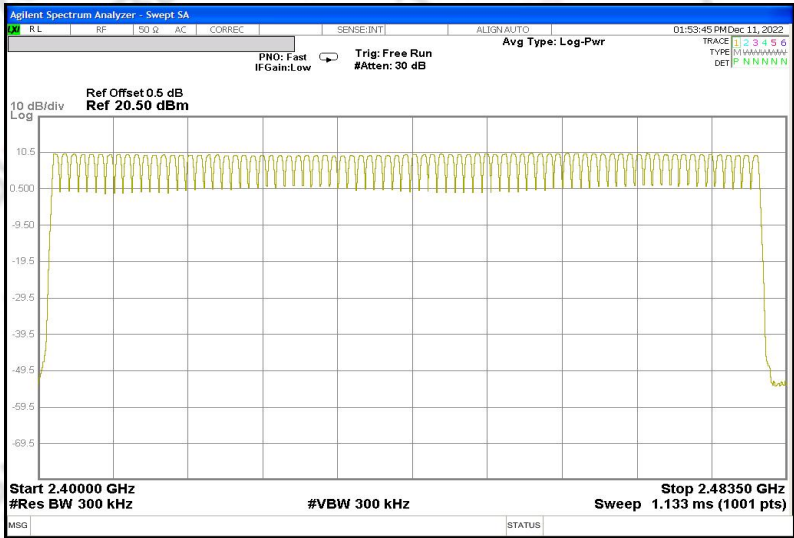
Please refer to section 3.1.4 of this report.

5.5 TEST RESULTS

Temperature:	25°C	Relative Humidity:	50%
Test Mode:	Hopping Mode -GFSK Mode	Test Voltage:	DC 19V

Number of Hopping Channel 79

Hopping channel



6. AVERAGE TIME OF OCCUPANCY

6.1 LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

6.2 TEST PROCEDURE

- The transmitter output (antenna port) was connected to the spectrum analyzer.
- Set RBW = 1MHz/VBW = 3MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Set the EUT for DH5, DH3 and DH1 packet transmitting.
- Measure the maximum time duration of one single pulse.
- 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.
- 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 $5.06 \times 31.6 = 160$ within 31.6 seconds.
- 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 $10.12 \times 31.6 = 320$ within 31.6 seconds.

6.3 TEST SETUP



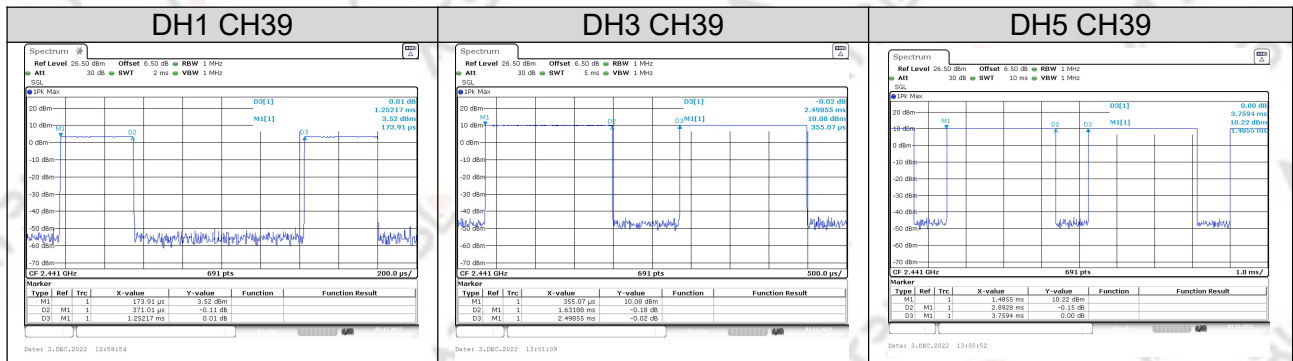
6.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

6.5 TEST RESULTS

Temperature:	25°C	Relative Humidity:	50%
Test Mode:	GFSK(1Mbps)-DH1/DH3/DH5	Test Voltage:	DC 19V

Data Packet	Channel	pulse time(ms)	Dwell Time(s)	Limits(s)
DH1	2441	0.37101	0.1187	0.4
DH3	2441	1.63188	0.2611	0.4
DH5	2441	2.8928	0.3086	0.4



Temperature:	25°C	Relative Humidity:	50%
Test Mode:	$\pi/4$ -DQPSK(2Mbps)-2DH1/2DH3/2DH5	Test Voltage:	DC 19V

Data Packet	Channel	pulse time(ms)	Dwell Time(s)	Limits(s)
2DH1	2441	0.38116	0.1220	0.4
2DH3	2441	1.62899	0.2606	0.4
2DH5	2441	2.8826	0.3075	0.4

