

Report No.: FR751045-03

Project No: CB10608292

FCC Test Report

Equipment

: PMP450b

Brand Name

: Cambium Networks

Model No.

: PMP450b

FCC ID

: Z8H89FT0032

Standard

: 47 CFR FCC Part 15.407

Operating Band

: 5250 MHz - 5350 MHz

5470 MHz - 5725 MHz

Applicant

: Cambium Networks Inc.

3800 Golf Road, Suite 360 Rolling Meadows, IL 60008,

USA

Manufacturer

: Cambium Networks Inc.

3800 Golf Road, Suite 360 Rolling Meadows, IL 60008,

Function

Outdoor; Indoor; Fixed P2P

Client

TPC Function

With TPC

Without TPC

The product sample received on May 05, 2017 and completely tested on Aug. 14, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 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.

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TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No.

: 1 of 23

Report Version

: Rev. 01

Issued Date

: Aug. 29, 2017



FCC Test Report

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	Testing Applied Standards	8
1.3	Testing Location Information	8
1.4	Measurement Uncertainty	8
2	TEST CONFIGURATION OF EUT	9
2.1	Test Channel Mode	9
2.2	The Worst Case Measurement Configuration	11
2.3	EUT Operation during Test	11
2.4	Accessories	11
2.5	Support Equipment	11
2.6	Test Setup Diagram	12
3	TRANSMITTER TEST RESULT	13
3.1	Emission Bandwidth	13
3.2	Maximum Conducted Output Power	14
3.3	Peak Power Spectral Density	16
3.4	Unwanted Emissions	19
3.5	Frequency Stability	22
4	TEST EQUIPMENT AND CALIBRATION DATA	23
APP	ENDIX A. TEST RESULTS OF EMISSION BANDWIDTH	
APP	ENDIX B. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APP	ENDIX C. TEST RESULTS OF PEAK POWER SPECTRAL DENSITY	
APPE	ENDIX D. TEST RESULTS OF UNWANTED EMISSIONS	

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APPENDIX F. TEST PHOTOS

PHOTOGRAPHS OF EUT V01

APPENDIX E. TEST RESULTS OF FREQUENCY STABILITY

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 2 of 23 Report Version : Rev. 01

Issued Date

: Aug. 29, 2017



FCC Test Report

Summary of Test Result

Conformance Test Specifications						
Report Clause	Description					
1.1.2	15.203	Antenna Requirement	Complied			
3.1	15.407(a)	Emission Bandwidth	Complied			
3.2	15.407(a)	Maximum Conducted Output Power	Complied			
3.3	15.407(a)	Peak Power Spectral Density	Complied			
3.4	15.407(b)	Unwanted Emissions	Complied			
3.5	15.407(g)	Frequency Stability	Complied			

SPORTON INTERNATIONAL INC. TEL: 886-3-3273456

FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 3 of 23 Report Version : Rev. 01

Issued Date : Aug. 29, 2017



Revision History

Report No.	Version	Description	Issued Date
FR751045-03	Rev. 01	Initial issue of report	Aug. 29, 2017

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 4 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Mode	Ch. F	requency	(MHz)	Channel Number
5250-5350	QPSK, 10M	5250	5255	5260	19
		5265	5270	5275	
		5280	5285	5290	
		5295	5300	5305	
		5310	5315	5320	
		5325	5330	5335	
			5340		
5470-5725		5480	5485	5490	39
		5495	5500	5505	
		5510	5515	5520	
		5525	5530	5535	
		5540	5545	5550	
		5555	5560	5565	
		5570	5575	5580	
		5585	5590	5595	
		5655	5660	5665	
		5670	5675	5680	
		5685	5690	5695	
		5700	5705	5710	
		5715	5720	5725	
5250-5350	QPSK, 40M	5250	5255	5260	17
		5265	5270	5275	
		5280	5285	5290	
		5295	5300	5305	
		5310	5315	5320	
		5325		5330	
5470-5725		5490	5495	5500	29
		5505	5510	5515	
		5520	5525	5530	
		5535	5540	5545	
		5550	5555	5560	

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 5 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017



FCC Test Report

5565	5570	5575
5580	5675	5680
5685	5690	5695
5700	5705	5710
5715		5720

Band	Mode	BWch (MHz)	Nant
5.25-5.35GHz	QPSK,10M	10	2TX
5.25-5.35GHz	QPSK,40M	40	2TX
5.47-5.725GHz	QPSK,10M	10	2TX
5.47-5.725GHz	QPSK,40M	40	2TX

Note:

- 10M and 40M use QPSK modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	-	-	Panel antenna	N/A	17
1	2	-	-	Panel antenna	N/A	17
2	1	-	-	Panel antenna	N/A	2
2	2	-	-	Panel antenna	N/A	2

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No.
Report Version

: 6 of 23 : Rev. 01

Report No.: FR751045-03

Issued Date

: Aug. 29, 2017



FCC Test Report

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
QPSK,10M	0.487	3.125	2.46m	1k
QPSK,40M	0.38	4.202	1.992m	1k

Report No.: FR751045-03

1.1.4 EUT Operational Condition

EUT Power Type	e From PoE		
Beamforming Function	☐ With beamforming ☐ Without beamforming		
Weather Band	☐ With 5600~5650MHz ☐ Without 5600~5650MHz		

1.1.5 Table for Class III Change

This product is an extension of original one reported under Sporton project number: FR751045-02 Below is the table for the change of the product with respect to the original one.

Description	Performance Checking
	1. Emission Bandwidth
Adding EC Road 2 and EC Road 2 aphy for 10M and 10M	2. Maximum Conducted Output Power
Adding 5G Band 2 and 5G Band 3 only for 10M and 40M	3. Spectral Density
(For detail information please refer to section 1.1.1)	4. Unwanted Emissions
	5. Frequency Stability

 SPORTON INTERNATIONAL INC.
 Page No.
 : 7 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017

1.2 Testing Applied Standards

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

Report No.: FR751045-03

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v01r04
- FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

	Testing Location							
	HWA YA ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.							
		TEL	:	886-3-327-3456 FA	AX	:	886-3-318-0055	
\boxtimes	JHUBEI ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.							
		TEL	:	886-3-656-9065 FA	AX	:	886-3-656-9085	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Lucke Hsieh & Eddie Weng	22°C / 54%	May 05, 2017~Aug. 14, 2017
Radiated	03CH01-CB	Mars Lin / Lucke Hsieh	22°C / 54%	Jun. 29, 2017~Jul. 21, 2017

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

1.4 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)

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%
Frequency Stability	6.06 x10 ⁻⁸	Confidence levels of 95%

 SPORTON INTERNATIONAL INC.
 Page No.
 : 8 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017



2 Test Configuration of EUT

2.1 Test Channel Mode

For Ant. 1

Mode	Power Setting
QPSK,10M_Nss1_2TX	-
5250MHz Straddle 5.15-5.25GHz	10
5250MHz Straddle 5.25-5.35GHz	10
5255MHz	7
5300MHz	6
5340MHz	6
5480MHz	4
5595MHz	4
5715MHz	6
5725MHz Straddle 5.47-5.725GHz	10
5725MHz Straddle 5.725-5.85GHz	10
QPSK,40M_Nss1_2TX	-
5250MHz Straddle 5.15-5.25GHz	10
5250MHz Straddle 5.25-5.35GHz	10
5300MHz	10
5330MHz	1
5490MHz	5
5580MHz	10
5720MHz Straddle 5.47-5.725GHz	10
5720MHz Straddle 5.725-5.85GHz	10

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 9 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017



FCC Test Report

For Ant. 2

Mode	Power Setting
QPSK,10M_Nss1_2TX	-
5250MHz Straddle 5.25-5.35GHz	4F/4C
5255MHz	5B/5C
5300MHz	5E/5E
5340MHz	5D/5D
5480MHz	5E/5F
5595MHz	5F/5E
5715MHz	59/55
5725MHz Straddle 5.47-5.725GHz	49/48
QPSK,40M_Nss1_2TX	-
5250MHz Straddle 5.15-5.25GHz	1C/1B
5250MHz Straddle 5.25-5.35GHz	53/52
5300MHz	5E/5A
5330MHz	90/8C
5490MHz	5E/5B
5580MHz	5D/5A
5720MHz Straddle 5.47-5.725GHz	52/4D
5720MHz Straddle 5.725-5.85GHz	4A/43

SPORTON INTERNATIONAL INC. TEL: 886-3-3273456

FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 10 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Peak Power Spectral Density Frequency Stability
Test Condition	Conducted measurement at transmit chains
Because Ant.1 & Ant.2 are	e the same type antennas, only the higher gain antenna "Ant.1" was tested.

Report No.: FR751045-03

The Worst Case Mode for Following Conformance Tests	
Tests Item	Maximum Conducted Output Power
Test Condition	Conducted measurement at transmit chains
Operating Mode	EUT with Ant. 1
	EUT with Ant. 2

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode > 1GHz	СТХ
Because Ant.1 & Ant.2 are the same type antennas, only the higher gain antenna "Ant.1" was tested.	

Note: 1. The EUT can only be use in Y axis

The EUT was powered by PoE, and the PoE was for measurement only, would not be marked.

Support Unit	Brand Name	Model Name
PoE	Cambium Networks	G1021-300-0265

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: 03CH01-CB and TH01-CB

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC
2	PoE	Cambium Networks	G1021-300-0265	DoC

 SPORTON INTERNATIONAL INC.
 Page No.
 : 11 of 23

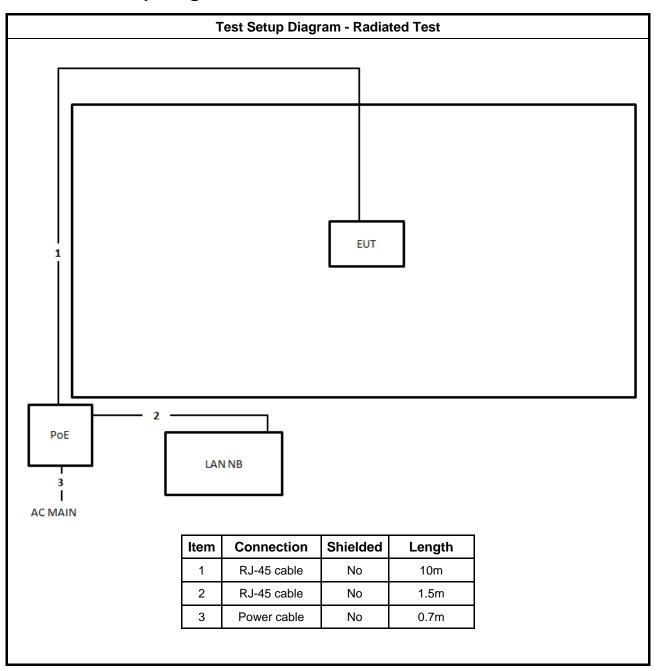
 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017

^{2.} PoE information as below:



2.6 Test Setup Diagram



TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 12 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017



3 Transmitter Test Result

3.1 Emission Bandwidth

3.1.1 Emission Bandwidth Limit

	Emission Bandwidth Limit		
UNI	UNII Devices		
\boxtimes	For the 5.15-5.25 GHz band, N/A		
	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.		
	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.		
\boxtimes	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.		
LE-	LAN Devices		
	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.		
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz		
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz		
	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.		

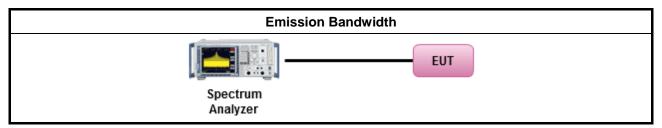
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

		Test Method
•	For	the emission bandwidth shall be measured using one of the options below:
		Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
		Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
	\boxtimes	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.1.4 Test Setup



3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 13 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017

3.2 Maximum Conducted Output Power

3.2.1 Maximum Conducted Output Power Limit

	Maximum Conducted Output Power Limit
UNI	I Devices
\boxtimes	For the 5.15-5.25 GHz band:
	Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6). e.i.r.p. at any elevation angle above 30 degrees \leq 125mW [21dBm]
	Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.
	Mobile or Portable Client: the maximum conducted output power (P _{Out}) shall not exceed the lesser of 250 mW. If G _{TX} > 6 dBi, then P _{Out} = 24 - (G _{TX} - 6).
	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
\boxtimes	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the maximum conducted output power (P _{Out}) shall not exceed the lesser of 1 W. If G _{TX} > 6 dBi, then P _{Out} = 30 − (G _{TX} − 6).
	 Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.725-5.85 GHz band:
	 Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6).
	 Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
	t = maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

Report No.: FR751045-03

 SPORTON INTERNATIONAL INC.
 Page No.
 : 14 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017



3.2.2 Measuring Instruments

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

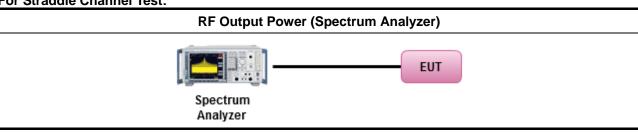
3.2.3 Test Procedures

	Test Method
-	Maximum Conducted Output Power
	Average over on/off periods with duty factor
	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
	Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
•	For conducted measurement.
	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	■ If multiple transmit chains, EIRP calculation could be following as methods: P _{total} = P ₁ + P ₂ + + P _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = P _{total} + DG

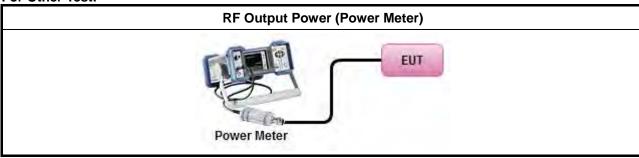
Report No.: FR751045-03

3.2.4 Test Setup

For Straddle Channel Test:



For Other Test:



3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

 SPORTON INTERNATIONAL INC.
 Page No.
 : 15 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017

3.3 Peak Power Spectral Density

3.3.1 Peak Power Spectral Density Limit

	Peak Power Spectral Density Limit
UN	II Devices
\boxtimes	For the 5.15-5.25 GHz band:
	 Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G_{TX} > 6 dBi, then P_{Out} = 17 - (G_{TX} - 6).
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.
	 Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If G_{TX} > 6 dBi, then PPSD= 11 - (G_{TX} - 6)
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 $-$ ($G_{TX} - 6$).
	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 – $(G_{TX} - 6)$.
\boxtimes	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) \leq 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) \leq 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) \leq 10 dBm/MHz.
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) \leq 17 dBm/MHz.
	 e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for 0° ≤ θ < 8°; -13 - 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 - 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ > 45°
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) \leq 17 dBm/MHz.
	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.
	 Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
pow	SD = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi.

Report No.: FR751045-03

3.3.2 Measuring Instruments

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

 SPORTON INTERNATIONAL INC.
 Page No.
 : 16 of 23

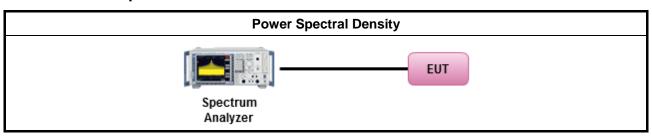
 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017

3.3.3 Test Procedures

		Test Method						
•	outp func	k power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density I be measured using below options:						
	Refer as FCC KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth							
	[duty	/ cycle ≥ 98% or external video / power trigger]						
	\boxtimes	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).						
		Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)						
	duty	cycle < 98% and average over on/off periods with duty factor						
	\boxtimes	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).						
		Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)						
•	For	conducted measurement.						
	•	If the EUT supports multiple transmit chains using options given below:						
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.						
		Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,						
		Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.						
	•	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $ PPSD_{total} = PPSD_1 + PPSD_2 + + PPSD_n \\ (calculated in linear unit [mW] and transfer to log unit [dBm]) \\ EIRP_{total} = PPSD_{total} + DG $						

3.3.4 Test Setup



SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 17 of 23
Report Version : Rev. 01

Issued Date : Aug. 29, 2017



FCC Test Report

3.3.5 Test Result of Peak Power Spectral Density

Refer as Appendix C

 SPORTON INTERNATIONAL INC.
 Page

 TEL: 886-3-3273456
 Repo

 FAX: 886-3-3270973
 Issue

FCC ID: Z8H89FT0032

 Page No.
 : 18 of 23

 Report Version
 : Rev. 01

 Issued Date
 : Aug. 29, 2017



3.4 Unwanted Emissions

3.4.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz 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 band emissions above 1GHz Limit						
Operating Band	Limit						
5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]						
5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.						

Note 1: 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).

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 19 of 23
Report Version : Rev. 01

Issued Date : Aug. 29, 2017



FCC Test Report Report No.: FR751045-03

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

		Test Method
•	perfequence about are be dist	asurements may be performed at a distance other than the limit distance provided they are not formed in the near field and the emissions to be measured can be detected by the measurement ippment. Measurements shall not be performed at a distance greater than 30 m for frequencies ove 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less impractical. When performing measurements at a distance other than that specified, the results shall extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear cance for field-strength measurements, inverse of linear distance-squared for power-density assurements).
•	The	e average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
•	For	the transmitter unwanted emissions shall be measured using following options below:
	•	Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.
	•	Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
		Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
		Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
		Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 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 FCC KDB 789033, clause H)5) measurement procedure peak limit.
		Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
•	For	radiated measurement.
	•	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	•	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	-	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
	The	e any unwanted emissions level shall not exceed the fundamental emission level.

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

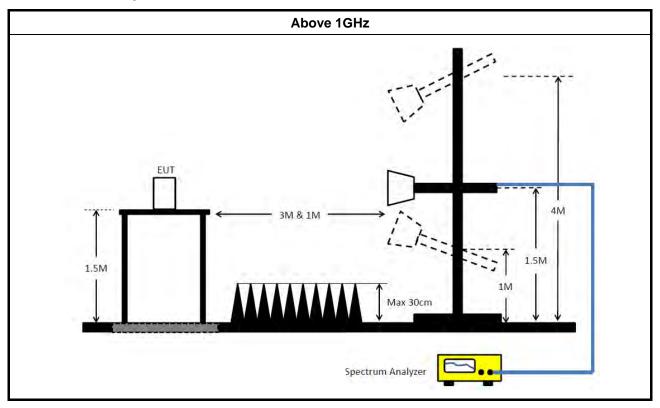
 SPORTON INTERNATIONAL INC.
 Page No.
 : 20 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017



3.4.4 Test Setup



3.4.5 Test Result of Transmitter Unwanted Emissions

Refer as Appendix D

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 21 of 23
Report Version : Rev. 01
Issued Date : Aug. 29, 2017

3.5 Frequency Stability

3.5.1 Frequency Stability Limit

Frequency Stability Limit

Report No.: FR751045-03

UNII Devices

• In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

LE-LAN Devices

N/A

IEEE Std. 802.11

■ The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band and ± 25 ppm maximum for the 2.4 GHz band.

3.5.2 Measuring Instruments

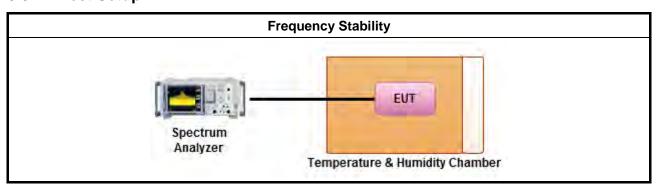
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method

- Refer as ANSI C63.10, clause 6.8 for frequency stability tests
 - Frequency stability with respect to ambient temperature
 - Frequency stability when varying supply voltage
 - Extreme temperature is -40°C~70°C.

3.5.4 Test Setup



3.5.5 Test Result of Frequency Stability

Refer as Appendix E

 SPORTON INTERNATIONAL INC.
 Page No.
 : 22 of 23

 TEL: 886-3-3273456
 Report Version
 : Rev. 01

 FAX: 886-3-3270973
 Issued Date
 : Aug. 29, 2017



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Horn Antenna	etenna EMCO 3115 00075790		00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Amplifier	-	-	TF-130N-R1	26GHz ~ 40GHz	Jun. 20, 2017	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-10-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Sep. 20, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

SPORTON INTERNATIONAL INC.

TEL: 886-3-3273456 FAX: 886-3-3270973 FCC ID: Z8H89FT0032 Page No. : 23 of 23
Report Version : Rev. 01

Issued Date : Aug. 29, 2017



Appendix A EBW Result

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
QPSK,10M_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	4.8M	4.638M	4M64D1D	4.8M	4.638M
5.25-5.35GHz	9.775M	9.195M	9M20D1D	4.8M	4.558M
5.47-5.725GHz	9.763M	9.195M	9M20D1D	4.815M	4.573M
5.725-5.85GHz	4.64M	4.598M	4M60D1D	4.64M	4.598M
QPSK,40M_Nss1_2TX	-	-	-	-	-
5.15-5.25GHz	26.16M	23.428M	23M4D1D	21.2M	18.471M
5.25-5.35GHz	43M	37.031M	37M0D1D	16M	13.593M
5.47-5.725GHz	43M	36.982M	37M0D1D	21.21M	18.331M
5.725-5.85GHz	18.58M	18.471M	18M5D1D	13.58M	13.513M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth;

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 1 of 8



EBW Result Appendix A

Result

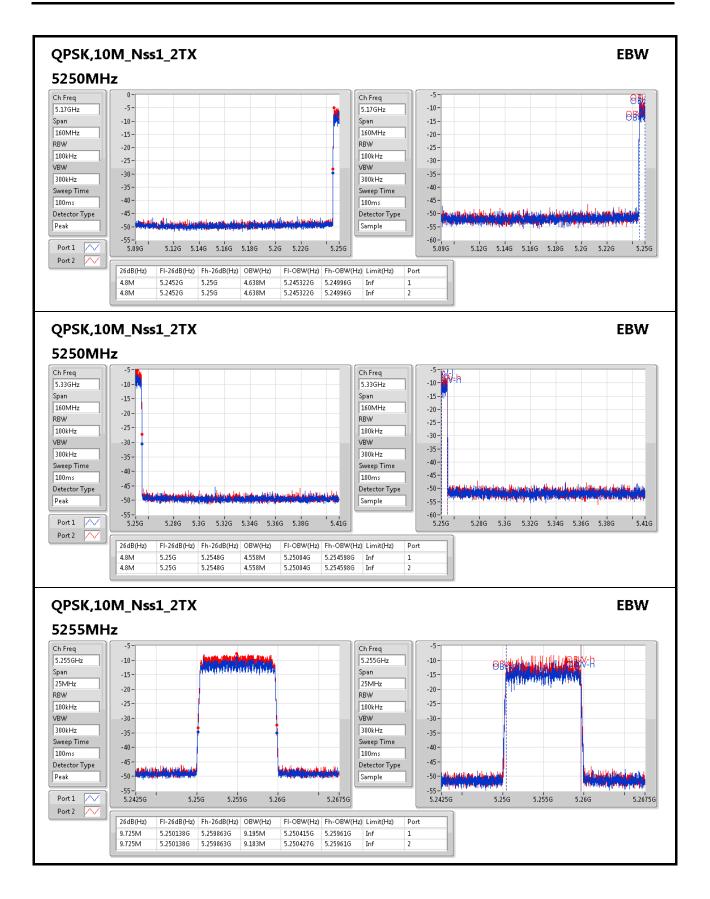
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
QPSK,10M_Nss1_2TX	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	4.8M	4.638M	4.8M	4.638M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	4.8M	4.558M	4.8M	4.558M
5255MHz	Pass	Inf	9.725M	9.195M	9.725M	9.183M
5300MHz	Pass	Inf	9.75M	9.195M	9.775M	9.195M
5340MHz	Pass	Inf	9.738M	9.17M	9.713M	9.183M
5480MHz	Pass	Inf	9.763M	9.195M	9.7M	9.195M
5595MHz	Pass	Inf	9.713M	9.195M	9.725M	9.195M
5715MHz	Pass	Inf	9.738M	9.183M	9.713M	9.195M
5725MHz Straddle 5.47-5.725GHz	Pass	Inf	4.83M	4.588M	4.815M	4.573M
5725MHz Straddle 5.725-5.85GHz	Pass	500k	4.64M	4.598M	4.64M	4.598M
QPSK,40M_Nss1_2TX	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	21.28M	18.791M	21.2M	18.471M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	21.52M	18.551M	21.28M	18.471M
5300MHz	Pass	Inf	42.5M	36.982M	42.85M	36.882M
5330MHz	Pass	Inf	42.9M	37.031M	43M	36.982M
5490MHz	Pass	Inf	42.85M	36.932M	42.5M	36.982M
5580MHz	Pass	Inf	43M	36.882M	42.75M	36.932M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	26.355M	23.368M	26.39M	23.403M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	13.58M	13.573M	13.58M	13.513M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

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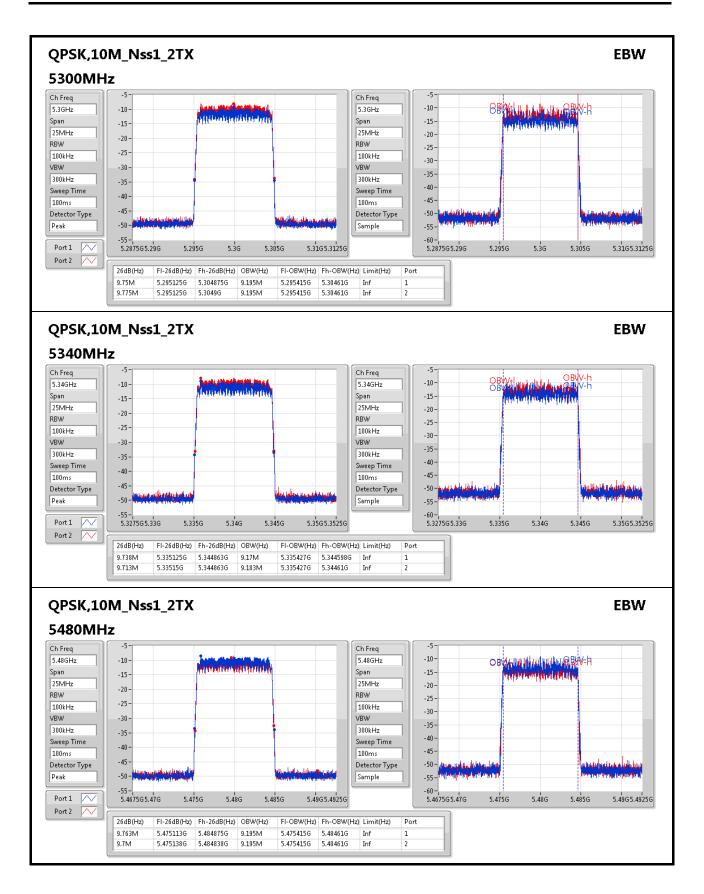
Page No. : 3 of 8





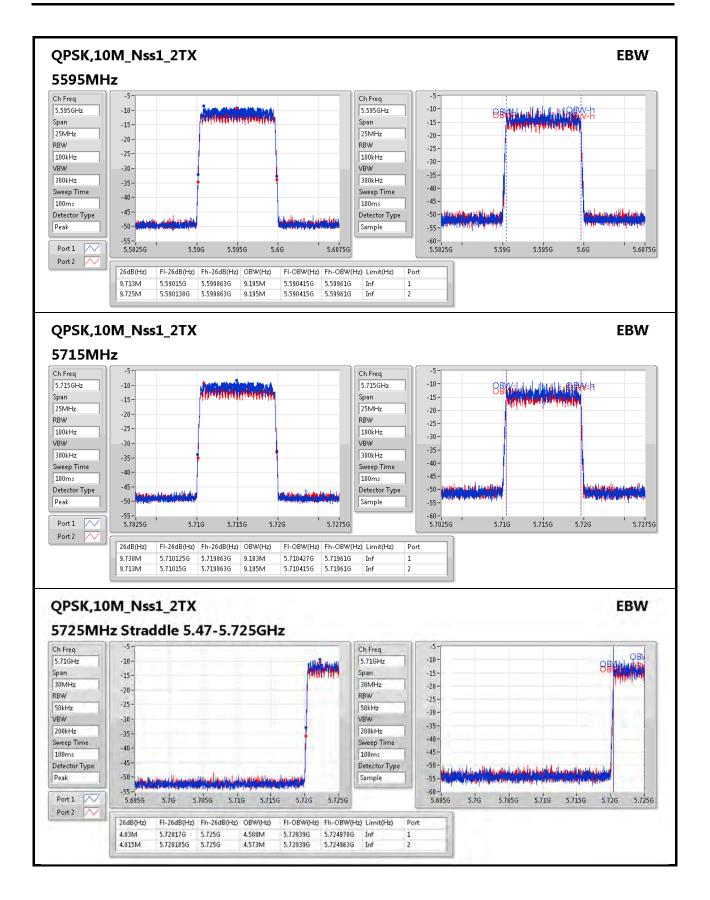
Page No. : 4 of 8





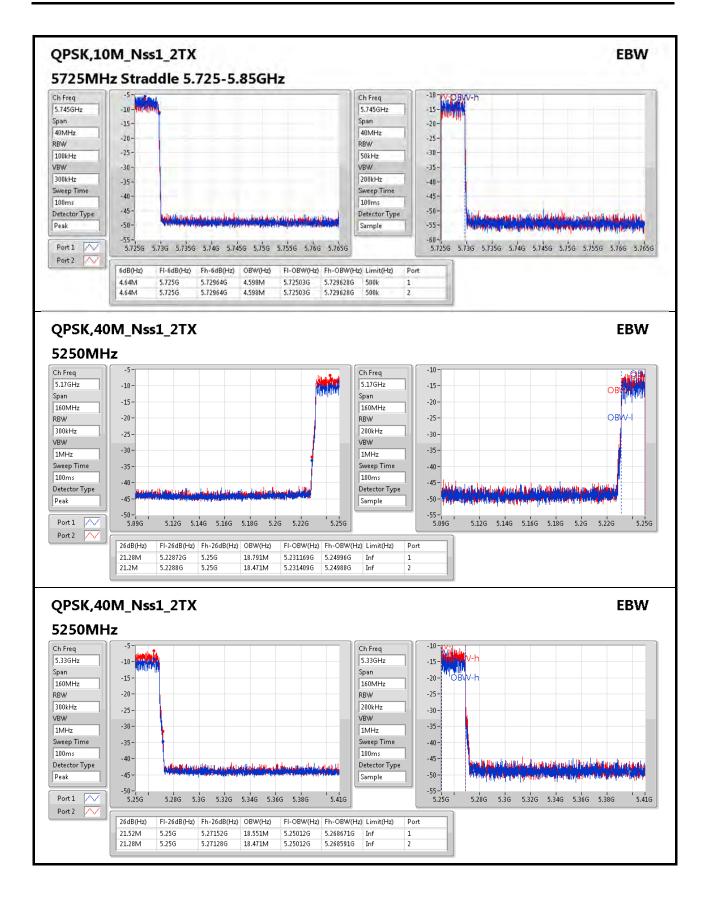
Page No. : 5 of 8





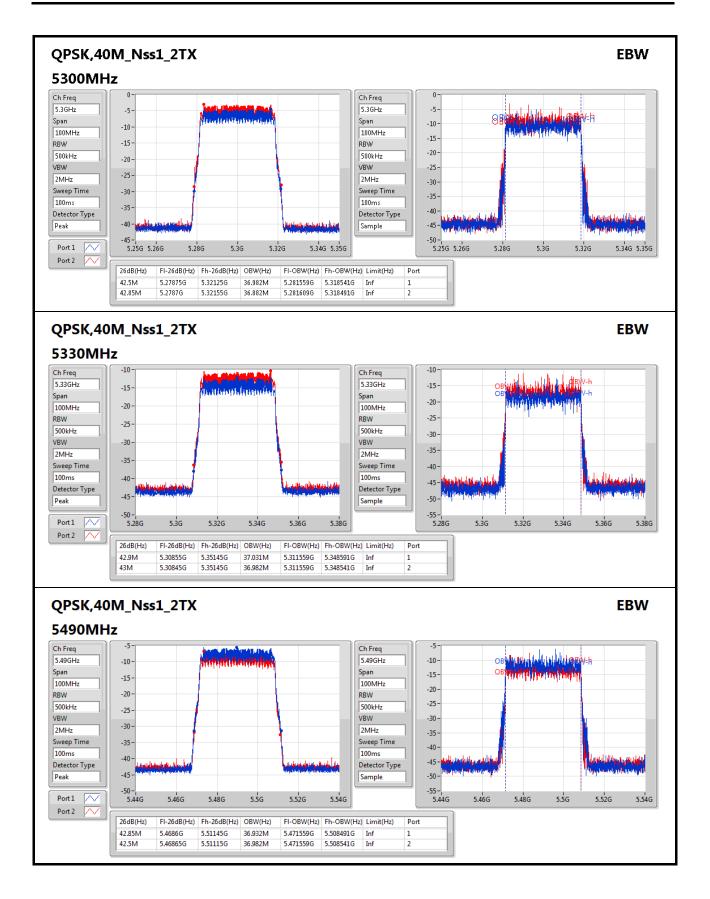
Page No. : 6 of 8





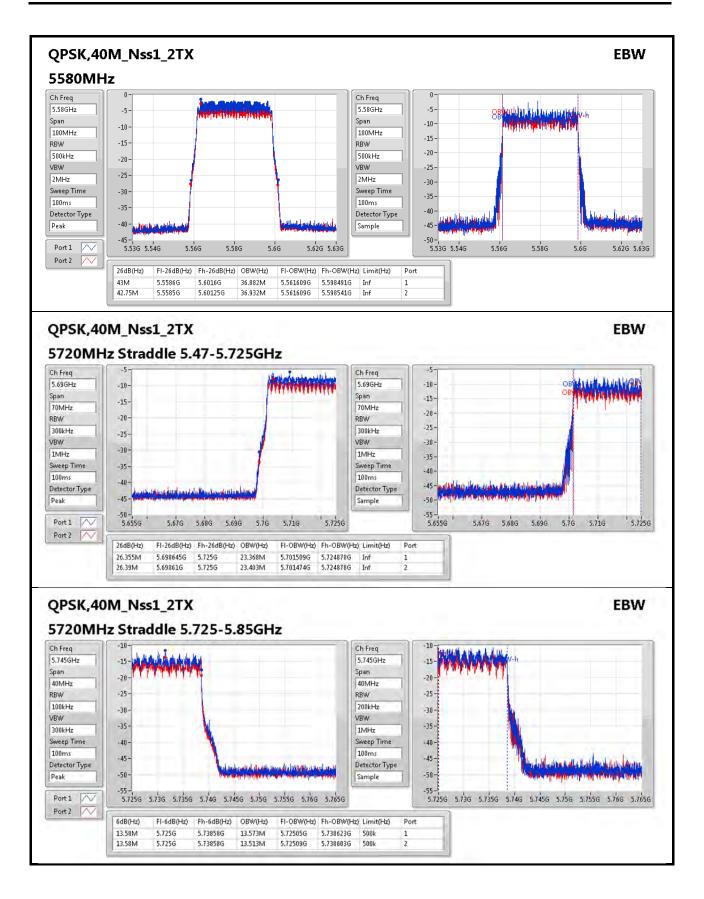
Page No. : 7 of 8

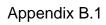




Appendix A









Power Result-For 17dBi

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
QPSK,10M_Nss1_2TX	-	-
5.15-5.25GHz	-0.64	0.00086
5.25-5.35GHz	3.18	0.00208
5.47-5.725GHz	2.73	0.00187
5.725-5.85GHz	0.23	0.00105
QPSK,40M_Nss1_2TX	-	-
5.15-5.25GHz	0.78	0.00120
5.25-5.35GHz	6.20	0.00417
5.47-5.725GHz	8.05	0.00638
5.725-5.85GHz	5.91	0.00390

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 1 of 5



Power Result-For 17dBi

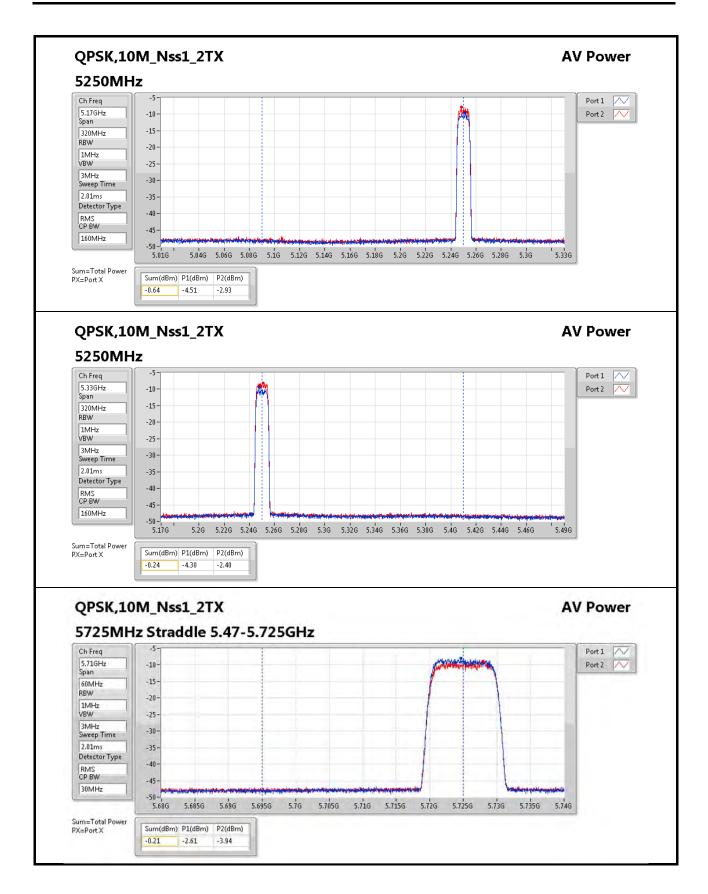
Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
QPSK,10M_Nss1_2TX	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	17.00	-4.51	-2.93	-0.64	30.00
5250MHz Straddle 5.25-5.35GHz	Pass	17.00	-4.3	-2.4	-0.24	6.81
5255MHz	Pass	17.00	-0.92	0.26	2.72	9.88
5300MHz	Pass	17.00	-0.81	0.38	2.84	9.89
5340MHz	Pass	17.00	-0.38	0.66	3.18	9.87
5480MHz	Pass	17.00	-0.02	-0.61	2.71	9.87
5595MHz	Pass	17.00	0.1	-0.86	2.66	9.87
5715MHz	Pass	17.00	0.23	-0.87	2.73	9.87
5725MHz Straddle 5.47-5.725GHz	Pass	17.00	-2.61	-3.94	-0.21	6.83
5725MHz Straddle 5.725-5.85GHz	Pass	17.00	-2.1	-3.59	0.23	30.00
QPSK,40M_Nss1_2TX	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	17.00	-5.03	-3.16	-0.98	30.00
5250MHz Straddle 5.25-5.35GHz	Pass	17.00	-4.55	-3.05	-0.73	12.98
5300MHz	Pass	17.00	2.31	3.92	6.20	12.98
5330MHz	Pass	17.00	-5.88	-4.03	-1.85	12.98
5490MHz	Pass	17.00	1.04	-0.35	3.41	12.98
5580MHz	Pass	17.00	5.67	4.3	8.05	12.98
5720MHz Straddle 5.47-5.725GHz	Pass	17.00	2.63	1.11	4.95	12.98
5720MHz Straddle 5.725-5.85GHz	Pass	17.00	-1	-2.17	1.46	30.00

DG = Directional Gain; **Port X** = Port X output power

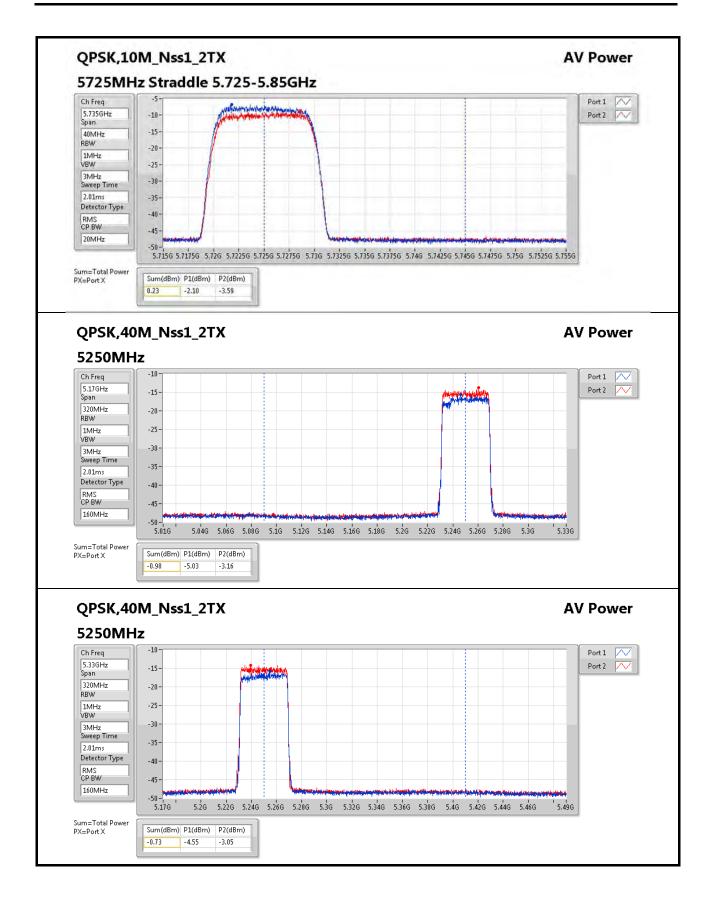
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 2 of 5





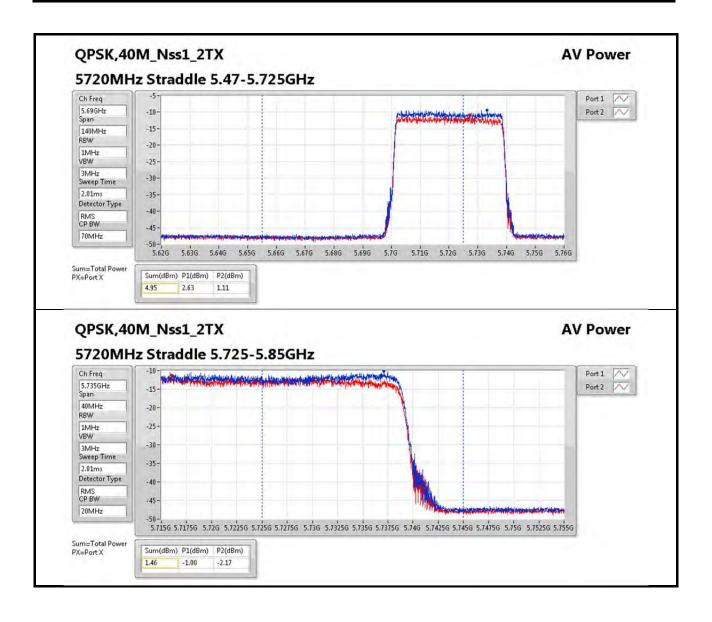
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Power Result-For 2dBi

Frequency (MHz)	Modulation	Data Rate		Band-edge under dB	Harmonic under	1 - 7	2444.00		Anritsu Power Meter Loss Offset (dB)	
			Radiated Pass Setting			Conducted Pass Setting	Test ed	ulpment	21.5	BF/Non BF Power Limit dBm
									Total	
							73	75		
							Port 1	Port 2	dBm	
5250	10M	QPSK	60/5D	-5.74	-6.72	4F/4C	9.57	9.69	12.64	13.00
5255	10M	QPSK	5E/72	-5.72	-6.46	5B/5C	9.85	9.96	12.92	13.00
5300	10M	QPSK	7B/5D	-5.85	-6.44	5E/5E	9.88	9.93	12.92	13.00
5340	10M	QPSK	62/65	-5.73	-6.56	5D/5D	9.92	9.87	12.91	13.00
5480	10M	QPSK	62/5D	-3.81	-6.74	5E/5F	9.95	9.93	12.95	13.00
5595	10M	QPSK	60/68	-5.24	-7.09	5F/5E	9.89	9.83	12.87	13.00
5715	10M	QPSK	70/55	-4.84	-6.23	59/55	9.98	9.92	12.96	13.00
5725	10M	QPSK	5B/5A	-6.67	-7.80	49/48	9.58	9.72	12.66	13.00
5245	40M	QPSK	1C/1B	-0.32	-6.01	1C/1B	26.88	26.93	29.92	30.00
5250	40M	QPSK	1E/1D	-0.77	-6.57	53/52	9.46	9.66	12.57	30.00
5300	40M	QPSK	5E/5A	-5.77	-6.58	5E/5A	9.93	9.97	12.96	13.00
5330	40M	QPSK	90/8C	-0.09	-6.46	90/8C	-1.98	-1,89	1.08	13.00
5490	40M	QPSK	5E/5B	-3.95	-7.74	5E/5B	9.84	9.96	12.91	13.00
5580	40M	QPSK	5D/5A	-5.55	-7.21	5D/5A	9.83	9.95	12.90	13.00
5720	40M	QPSK	57/52	-5.42	-7.52	52/4D	9.53	9.74	12.65	13.00
5725	40M	QPSK	0B/00	-5.64	-7.61	4A/43	9.47	9.85	12.67	30.00



PSD Result Appendix C

Summary

Mode	PD					
	(dBm/RBW)					
QPSK,10M_Nss1_2TX	-					
5.15-5.25GHz	-7.61					
5.25-5.35GHz	-7.07					
5.47-5.725GHz	-7.51					
5.725-5.85GHz	-8.88					
QPSK,40M_Nss1_2TX	-					
5.15-5.25GHz	-13.31					
5.25-5.35GHz	-9.66					
5.47-5.725GHz	-7.35					
5.725-5.85GHz	-8.34					

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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Appendix C **PSD** Result

Result

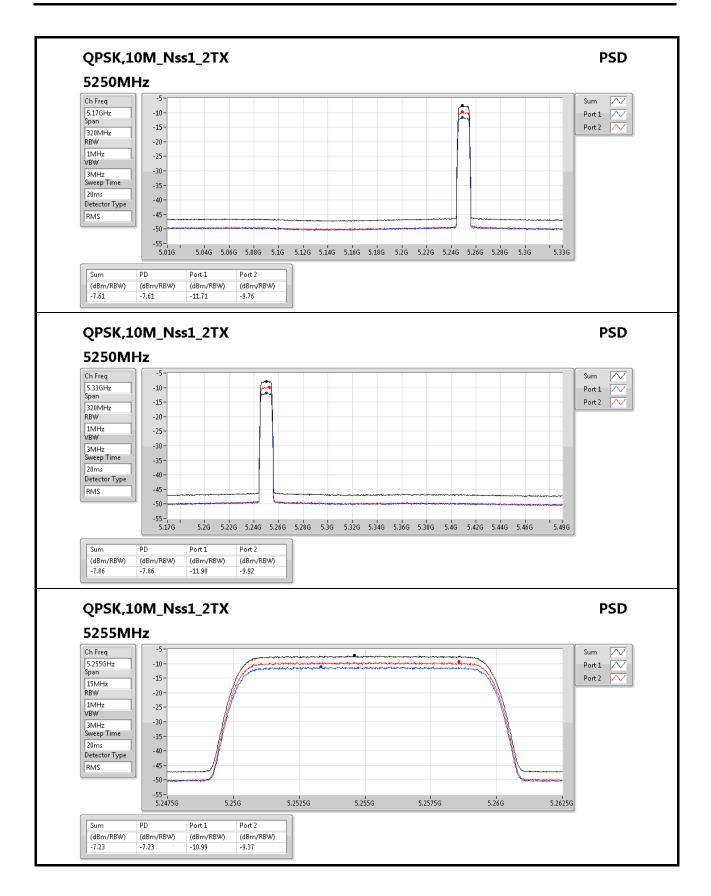
Mode	Result	DG	Port 1	Port 2	PD	PD Limit	
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	
QPSK,10M_Nss1_2TX	-	-	-	-	-	-	
5250MHz Straddle 5.15-5.25GHz	Pass	20.01	-11.71	-9.76	-7.61	17.00	
5250MHz Straddle 5.25-5.35GHz	Pass	20.01	-11.9	-9.92	-7.86	-3.01	
5255MHz	Pass	20.01	-10.99	-9.37	-7.23	-3.01	
5300MHz	Pass	20.01	-10.9	-9.69	-7.43	-3.01	
5340MHz	Pass	20.01	-10.4	-9.33	-7.07	-3.01	
5480MHz	Pass	20.01	-10.22	-10.8	-7.51	-3.01	
5595MHz	Pass	20.01	-10.04	-11.04	-7.53	-3.01	
5715MHz	Pass	20.01	-10.07	-11.22	-7.60	-3.01	
5725MHz Straddle 5.47-5.725GHz	Pass	20.01	-9.98	-10.95	-7.61	-3.01	
5725MHz Straddle 5.725-5.85GHz	Pass	20.01	-11.27	-12.21	-8.88	30.00	
QPSK,40M_Nss1_2TX	-	-	-	-	-	-	
5250MHz Straddle 5.15-5.25GHz	Pass	20.01	-18.24	-16.38	-14.27	17.00	
5250MHz Straddle 5.25-5.35GHz	Pass	20.01	-18.37	-16.56	-14.37	-3.01	
5300MHz	Pass	20.01	-13.37	-11.91	-9.66	-3.01	
5330MHz	Pass	20.01	-21.12	-19.38	-17.24	-3.01	
5490MHz	Pass	20.01	-14.54	-15.84	-12.14	-3.01	
5580MHz	Pass	20.01	-9.8	-11.42	-7.66	-3.01	
5720MHz Straddle 5.47-5.725GHz	Pass	20.01	-11.41	-12.97	-9.15	-3.01	
5720MHz Straddle 5.725-5.85GHz	Pass	20.01	-13.21	-14.75	-10.98	30.00	

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band; **PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

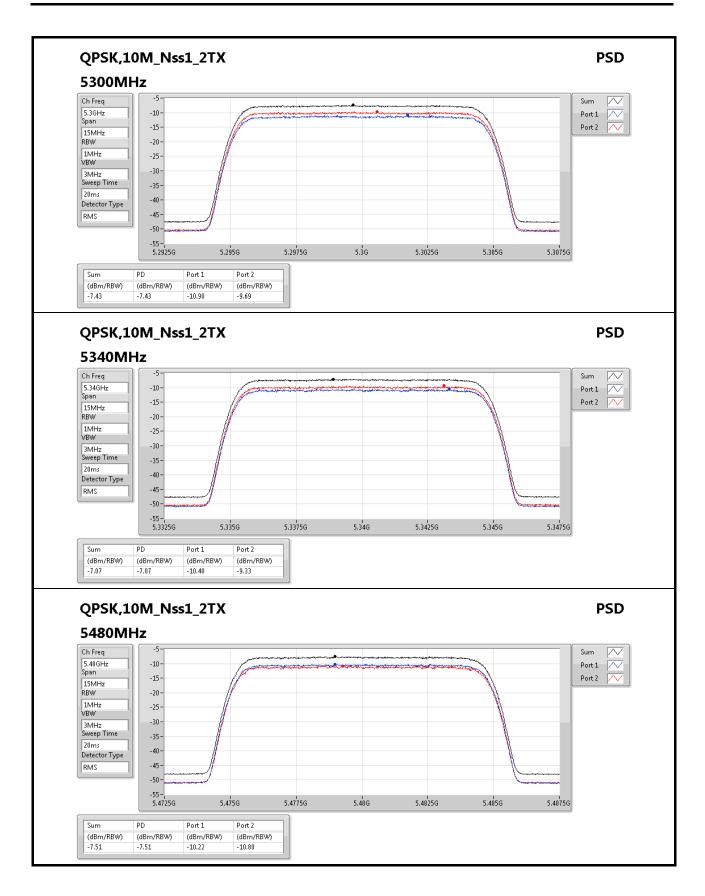
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 2 of 8

Page No. : 3 of 8



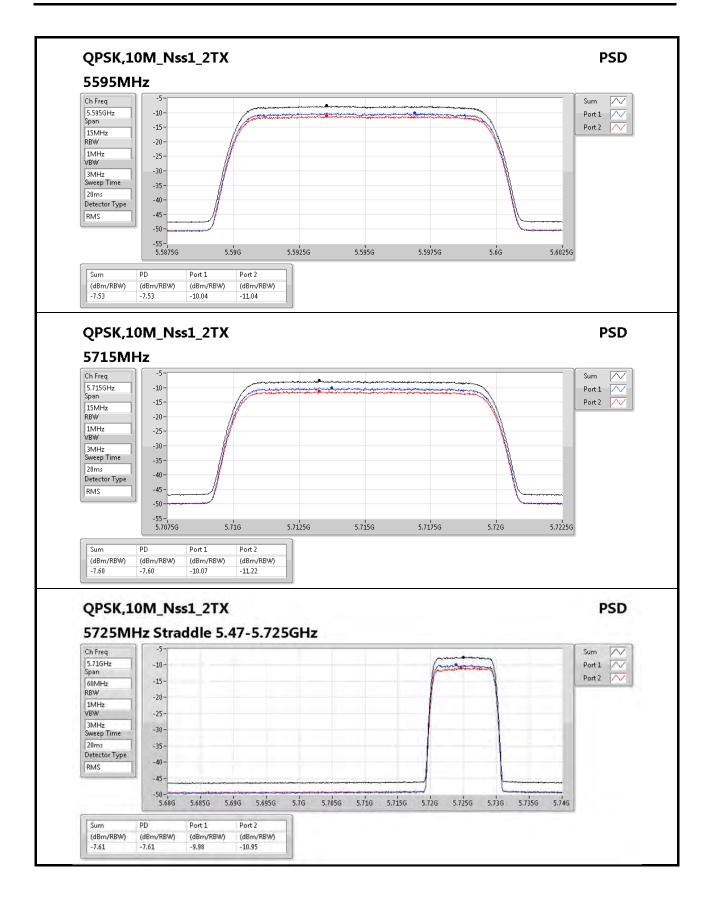






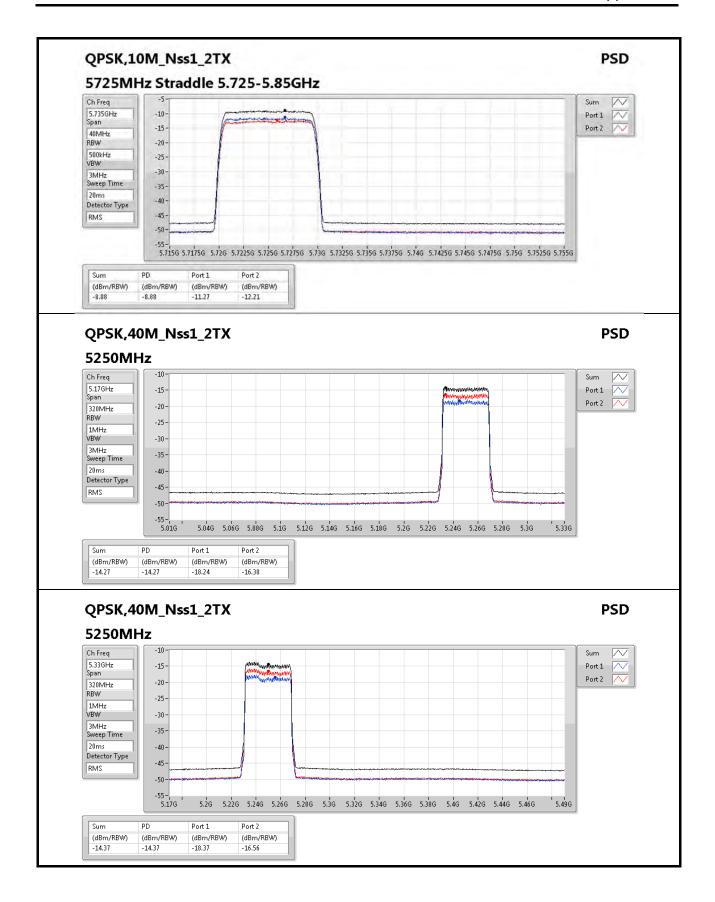
Page No. : 5 of 8





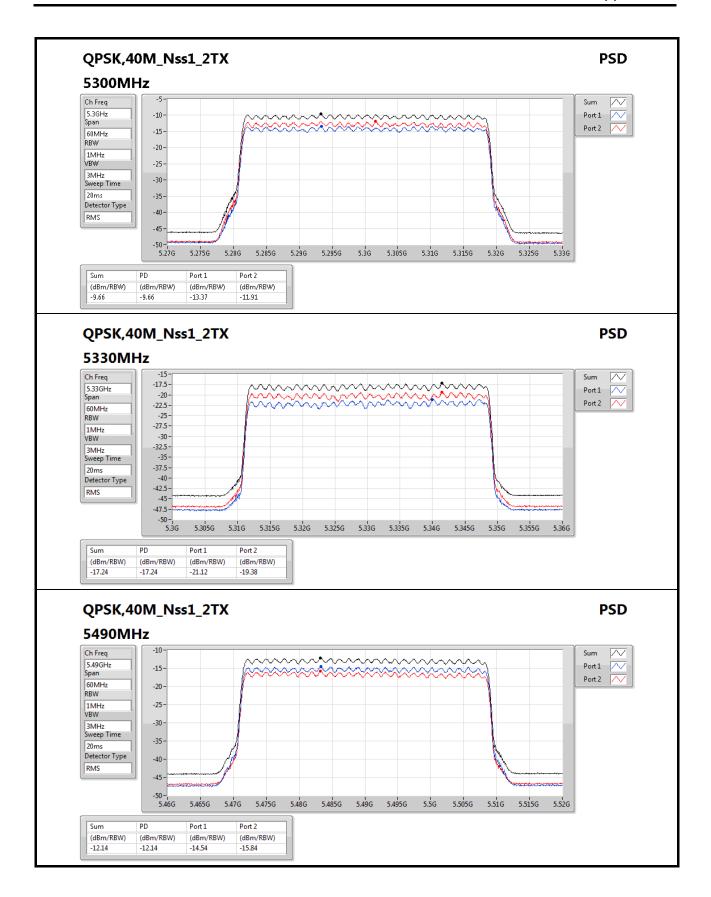
Page No. : 6 of 8



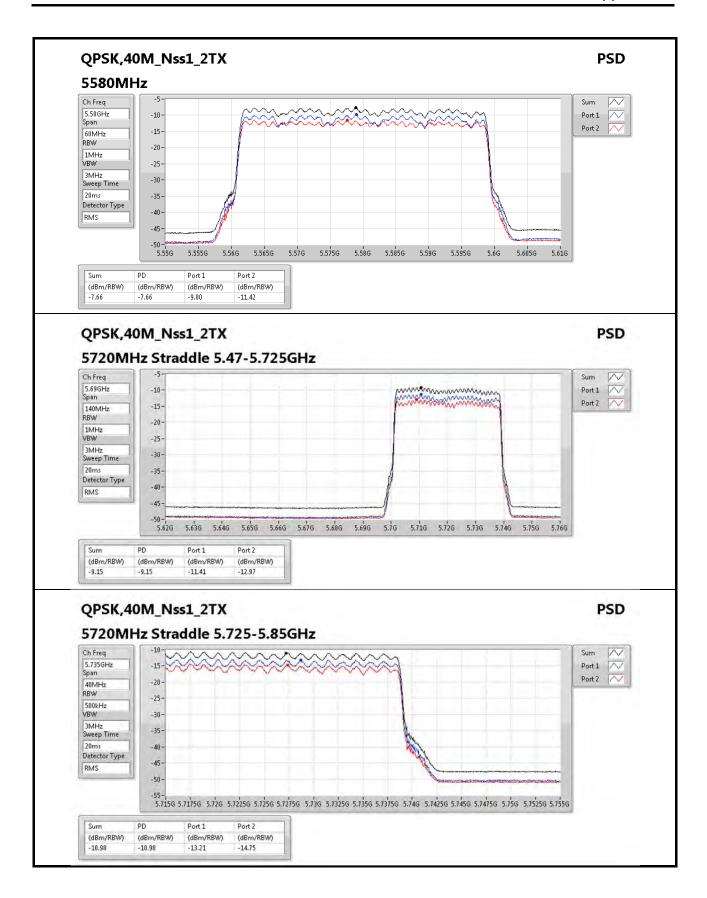


Page No. : 7 of 8











RSE TX above 1GHz Result

Appendix D

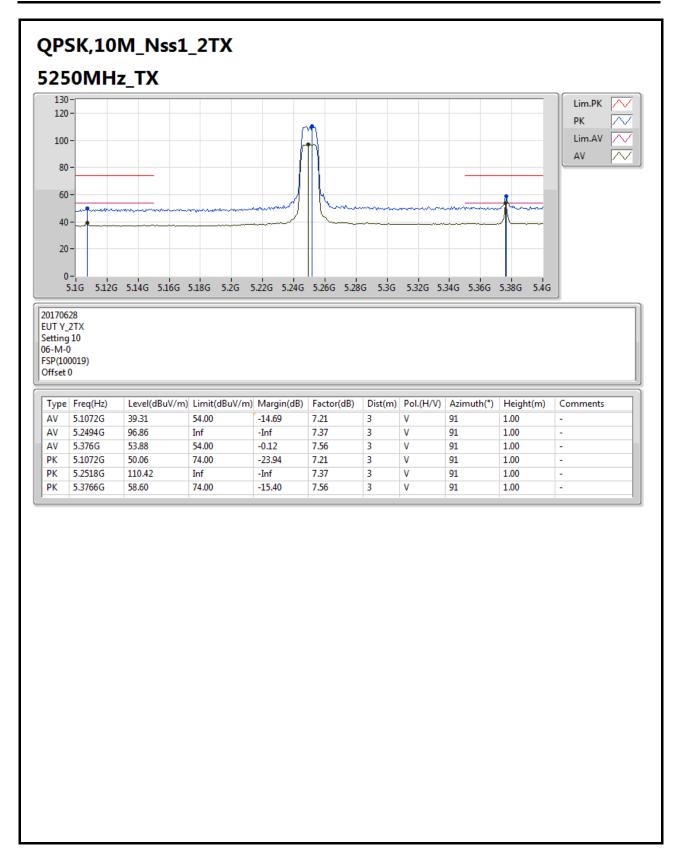
Page No. : 1 of 57

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth	Height (m)	Comments
QPSK,10M_Nss1_2TX	-	-	-	-	-	-	-	-	-	-		-
5.25-5.35GHz	Pass	AV	5.376G	53.98	54.00	-0.02	7.56	3	V	91	1.00	-

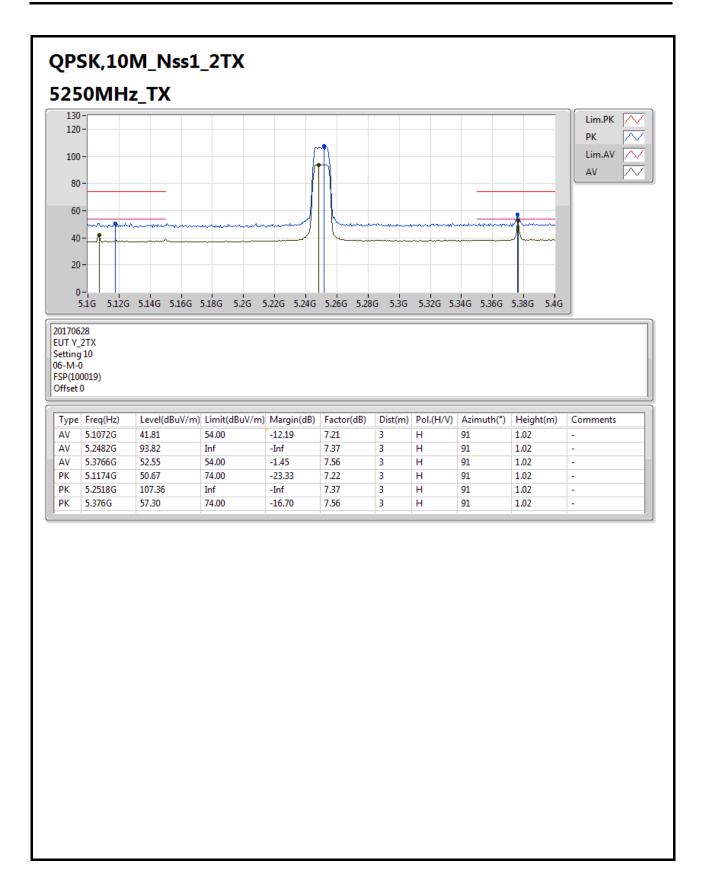
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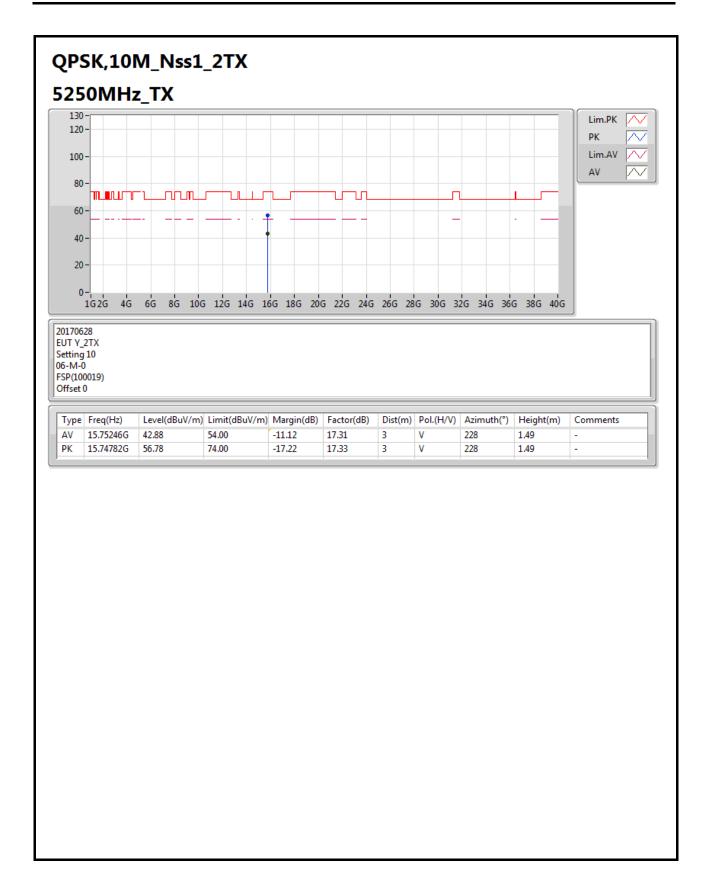
Page No. : 3 of 57



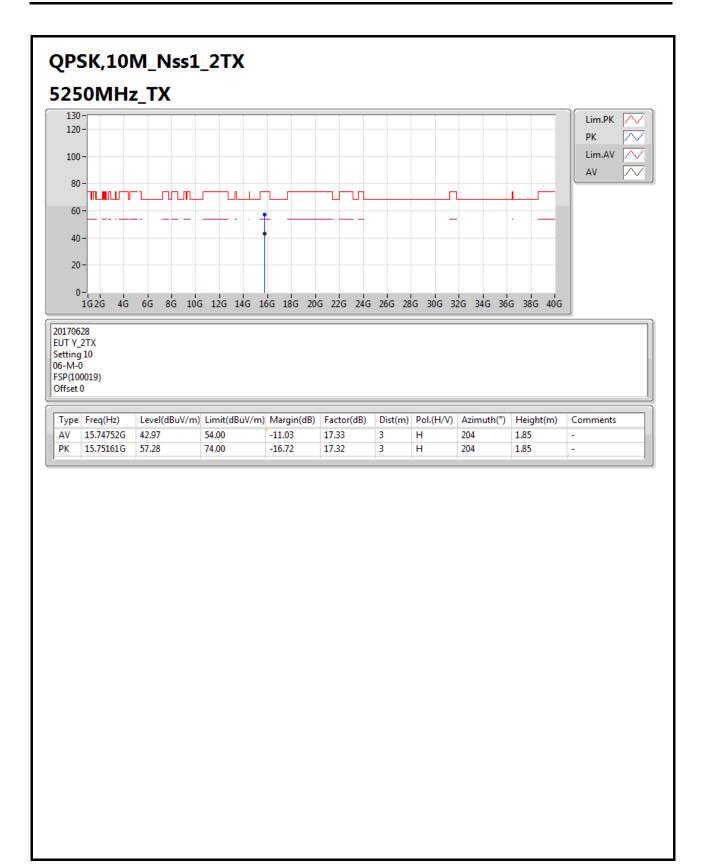


Page No. : 4 of 57



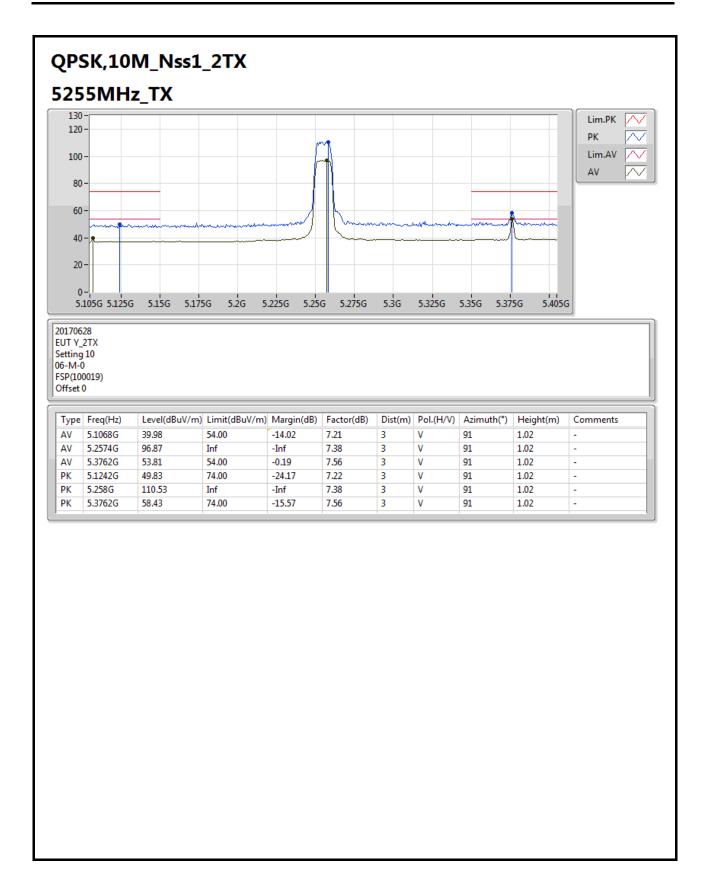






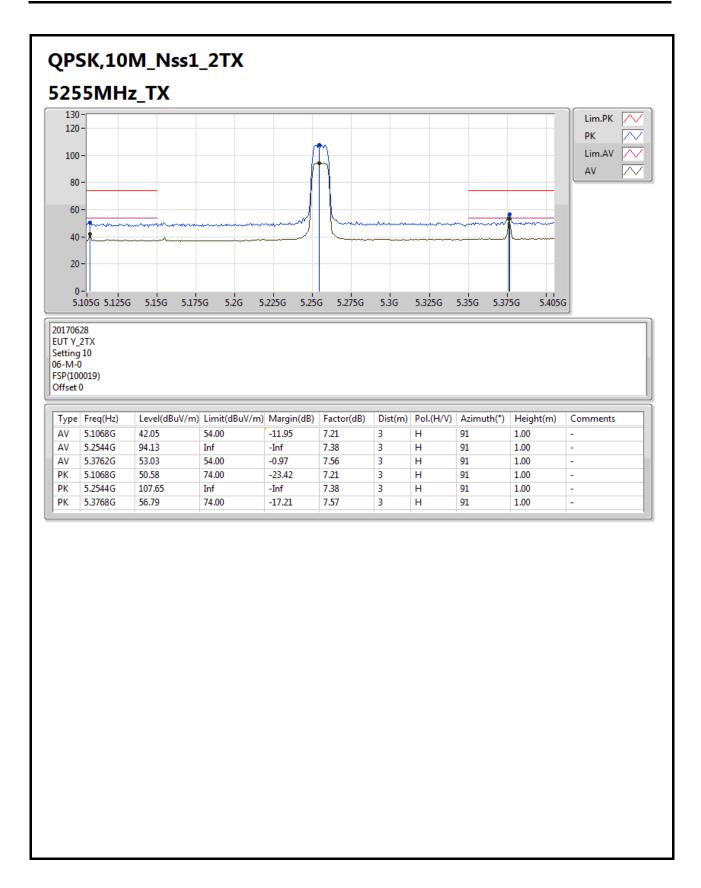
Page No. : 6 of 57





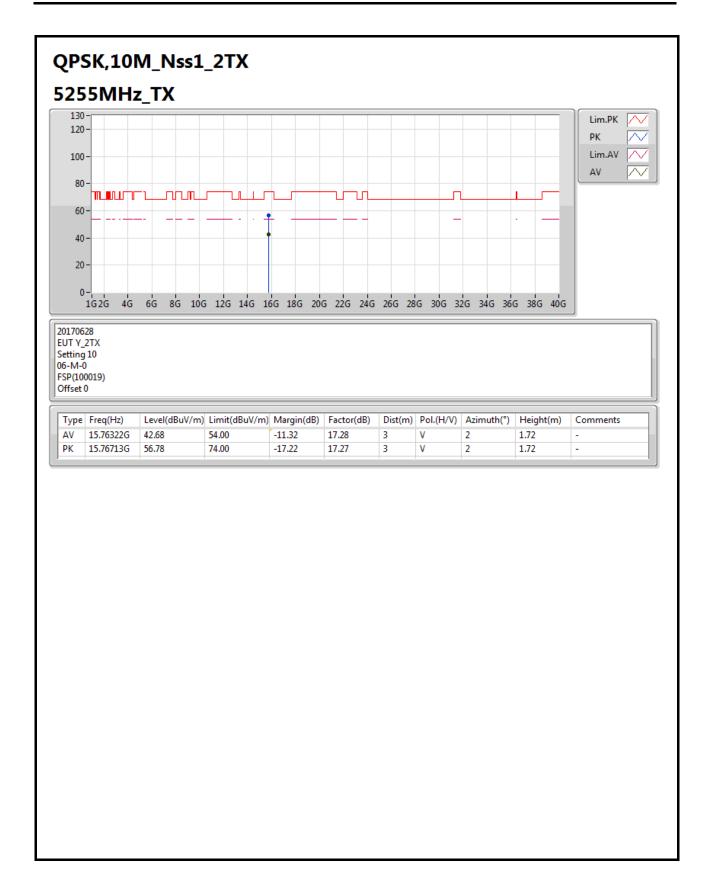
Page No. : 7 of 57



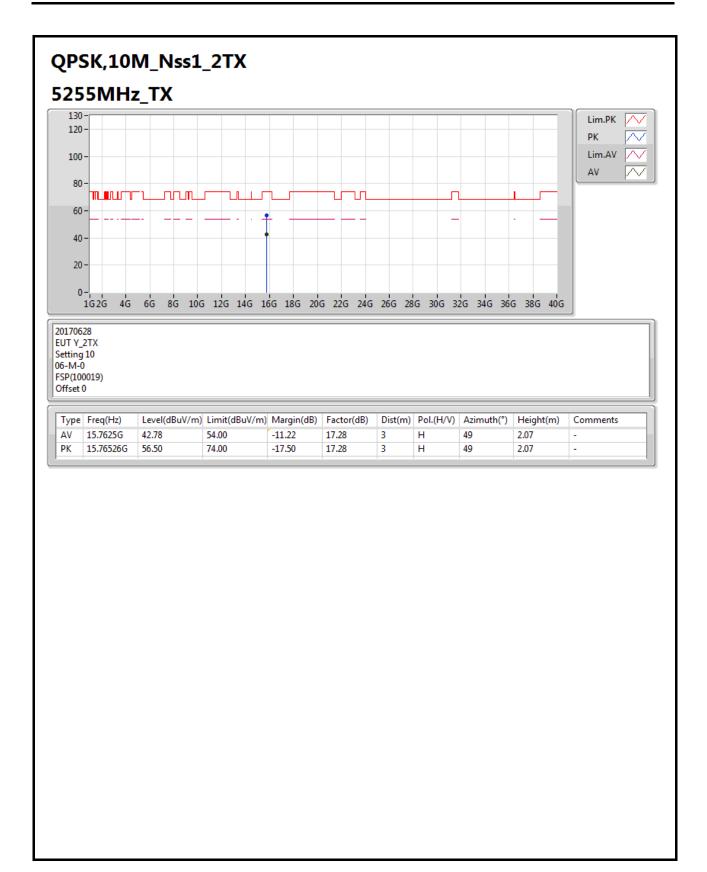


Page No. : 8 of 57

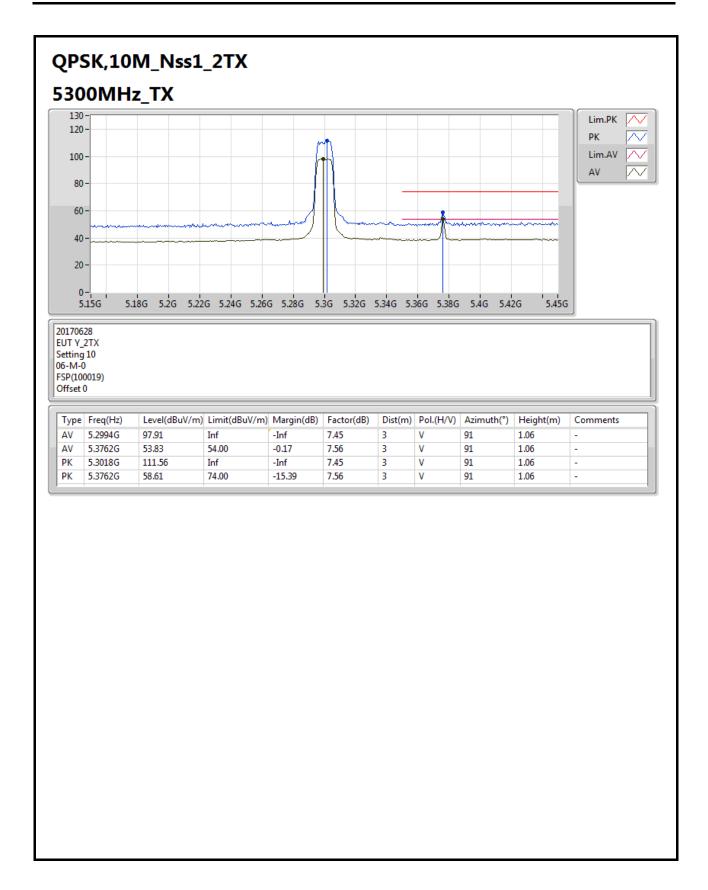




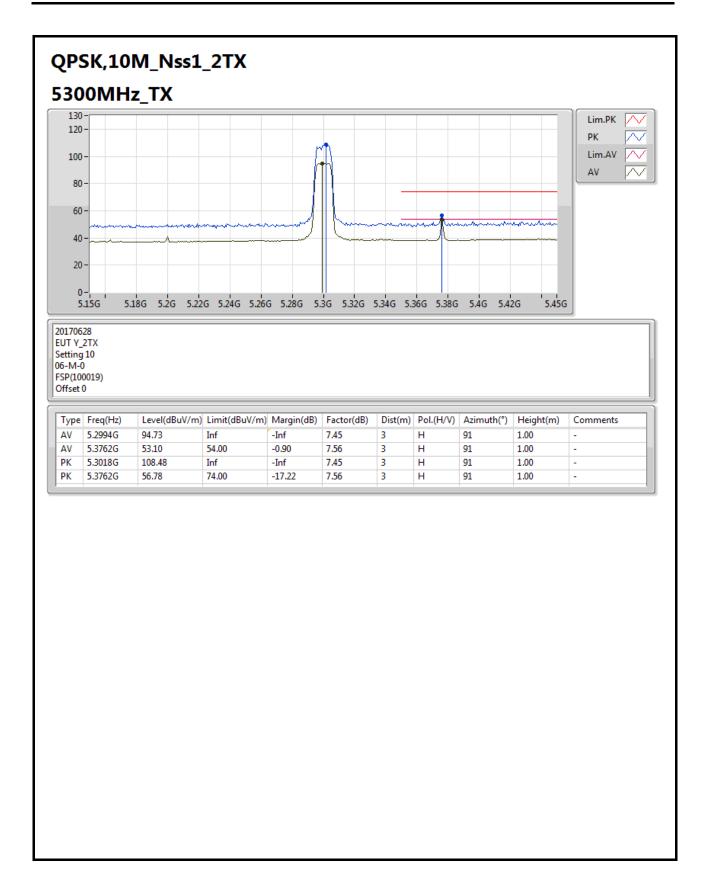






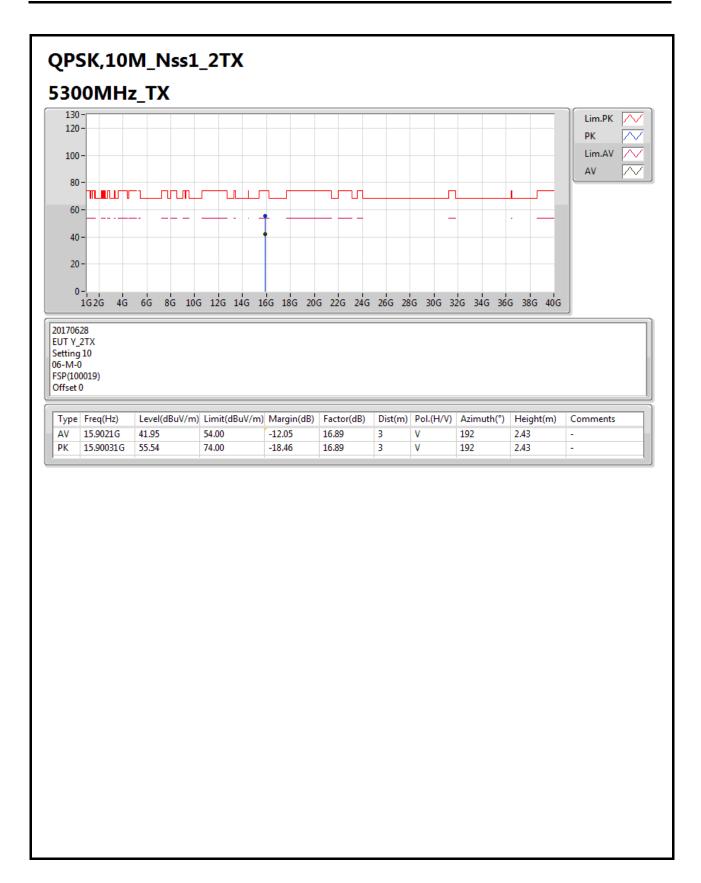




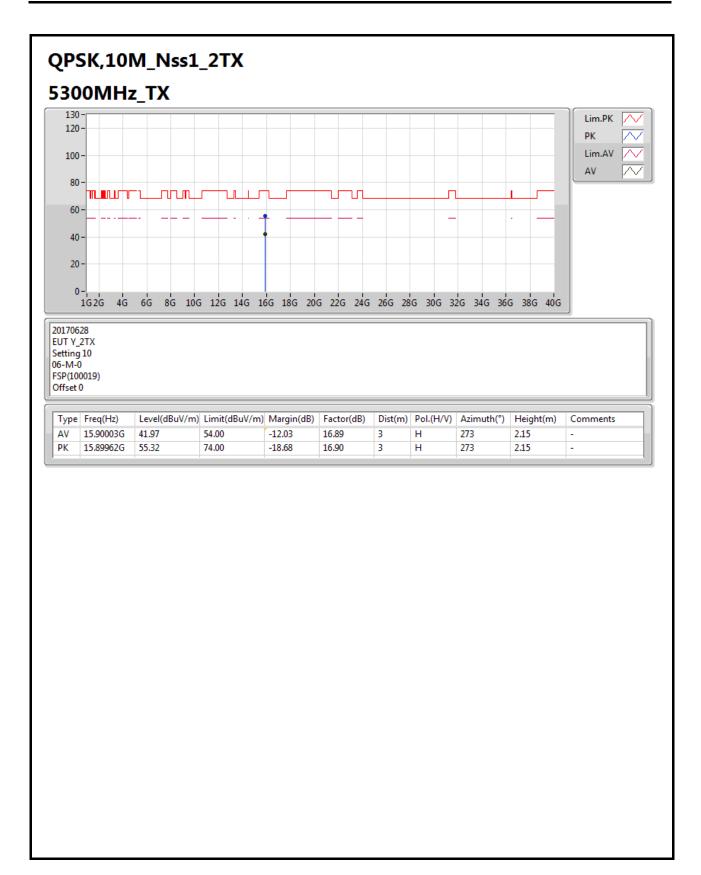


Page No. : 12 of 57



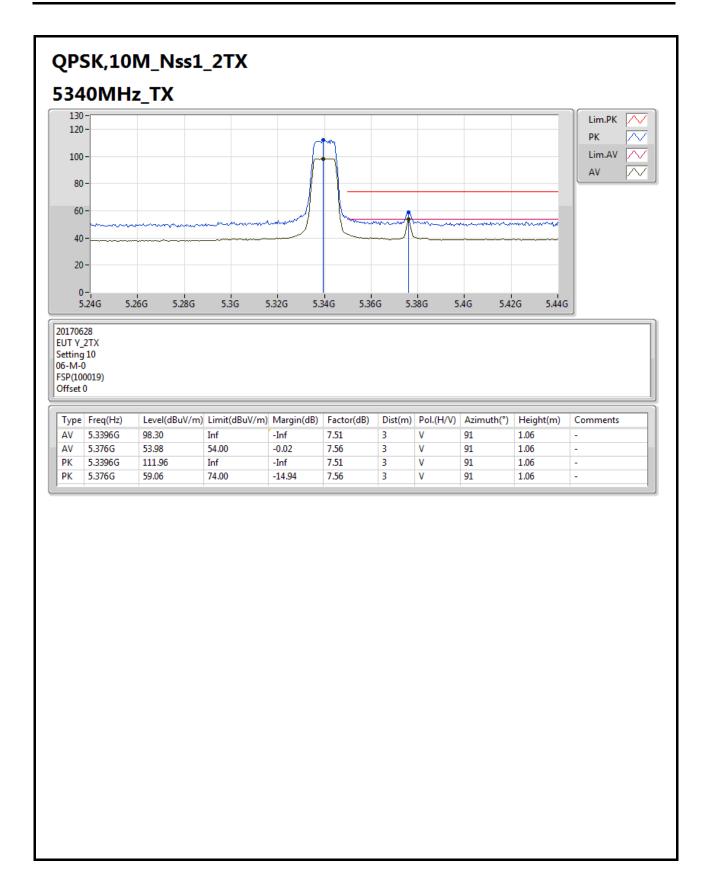




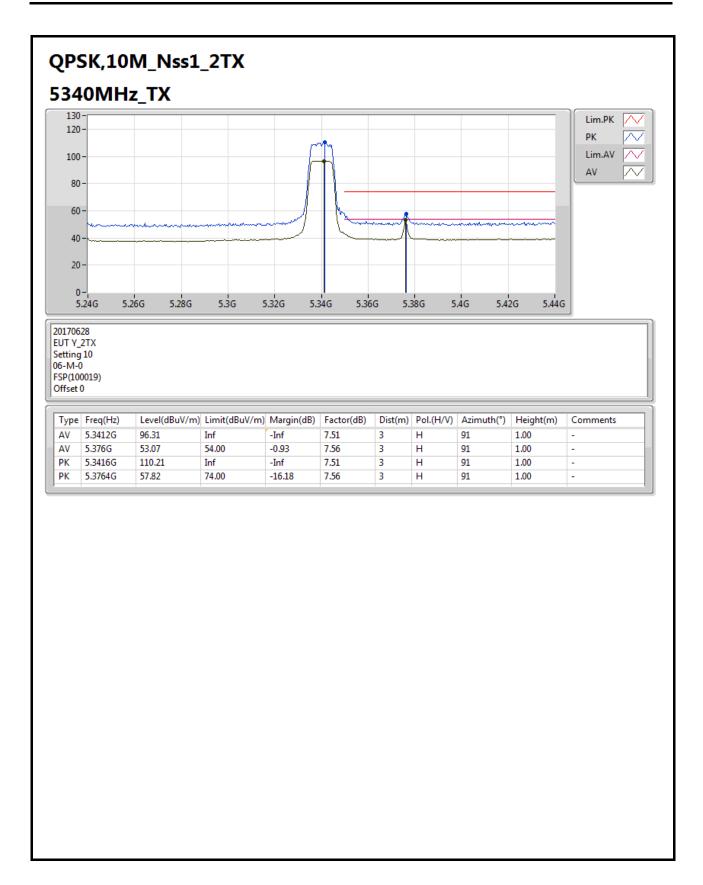


Page No. : 14 of 57

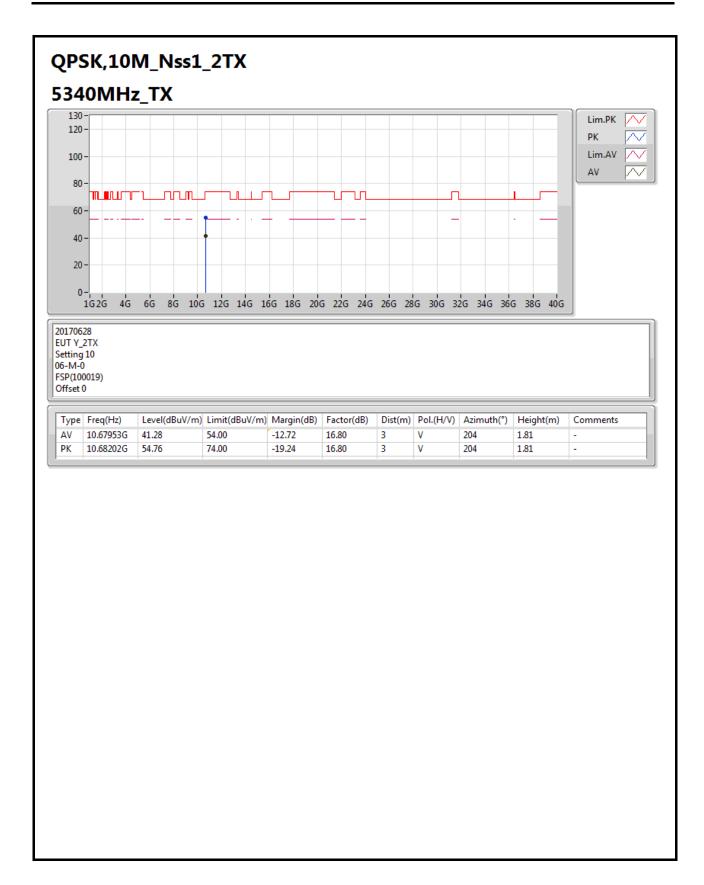






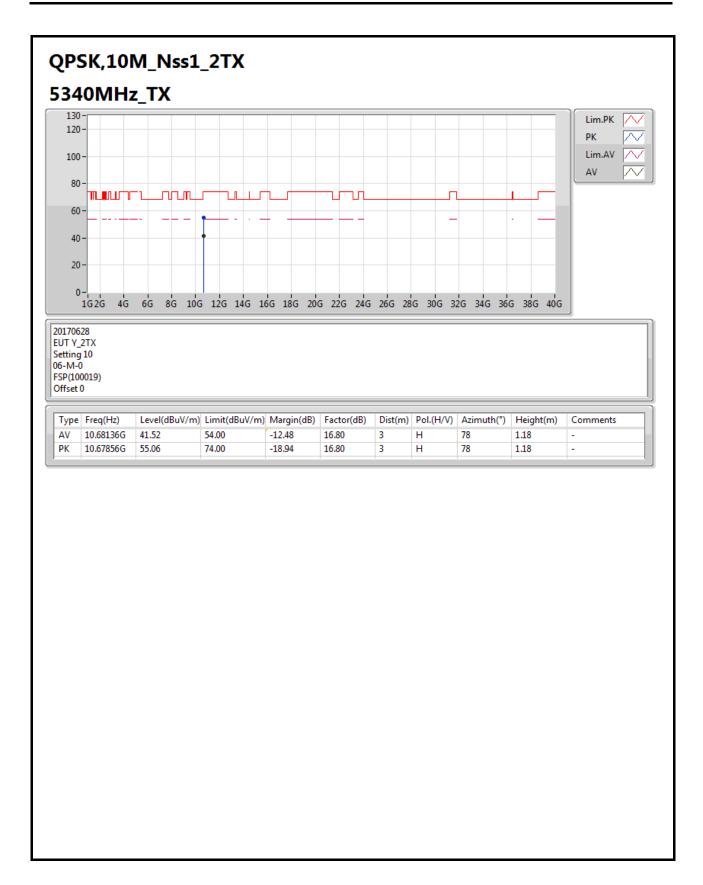






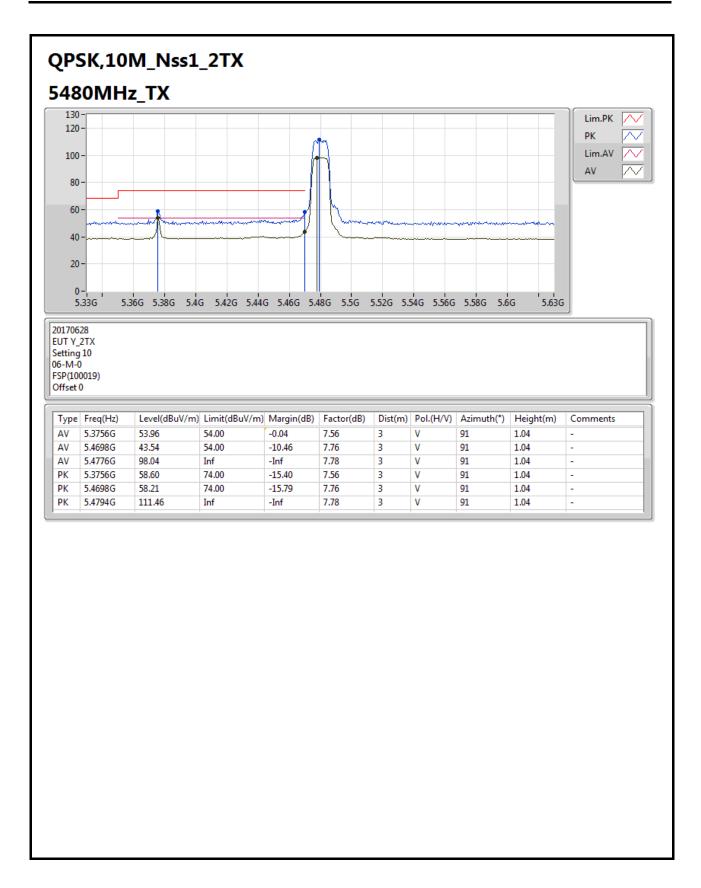
Page No. : 17 of 57



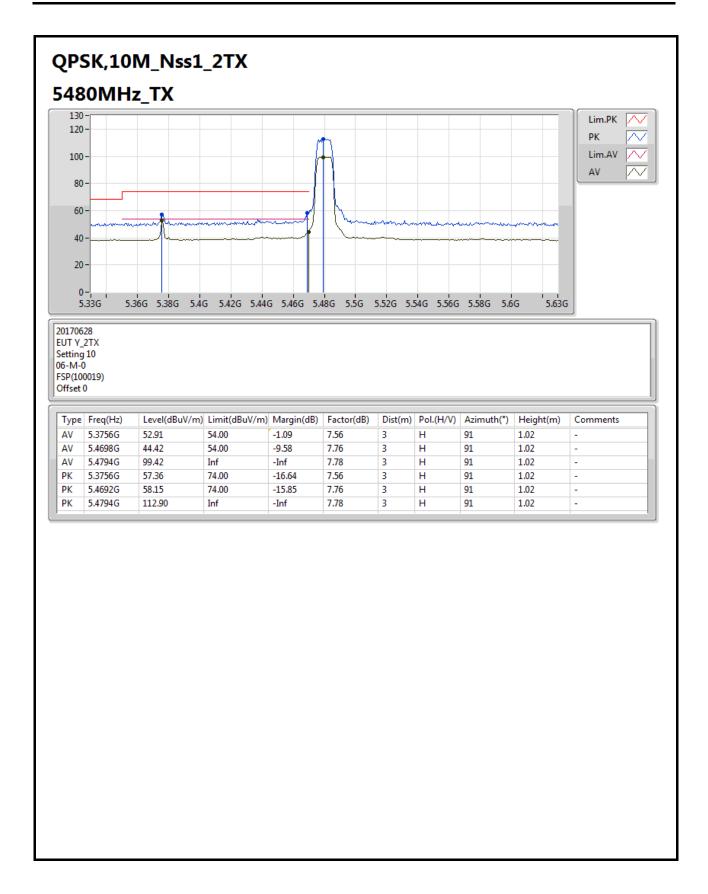


Page No. : 18 of 57

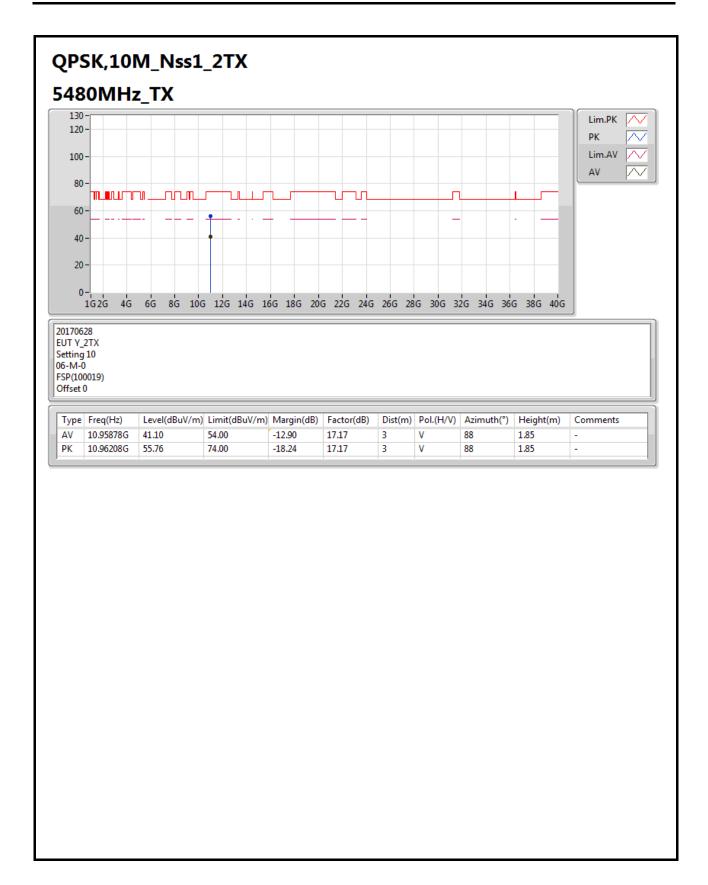




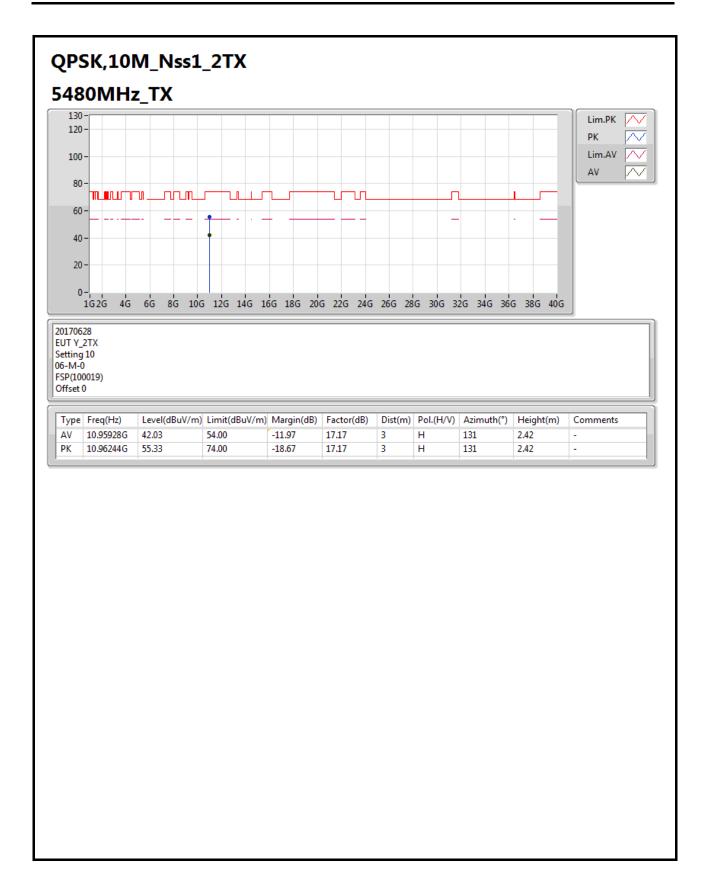




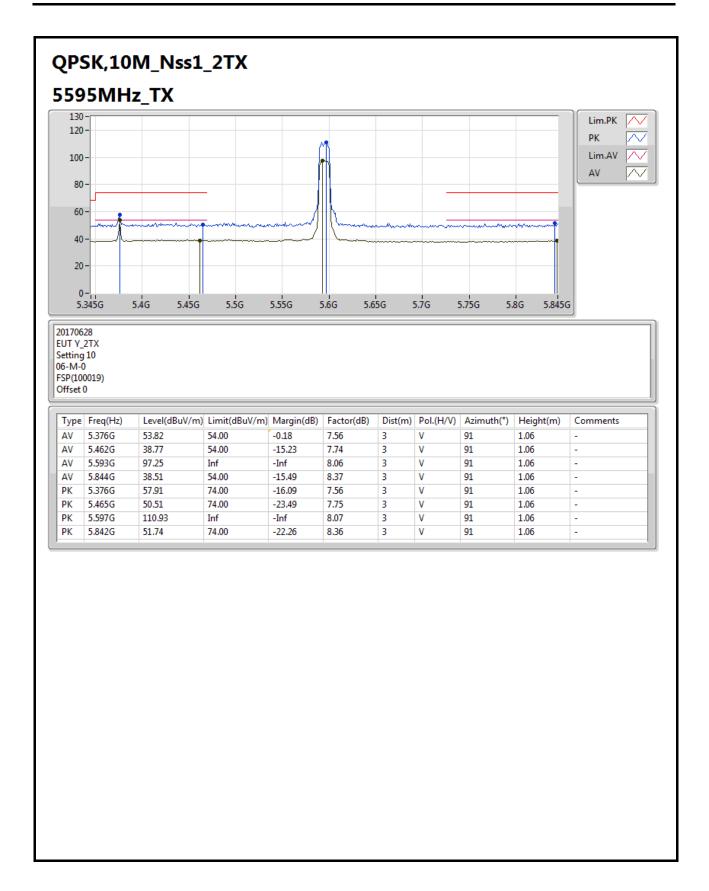




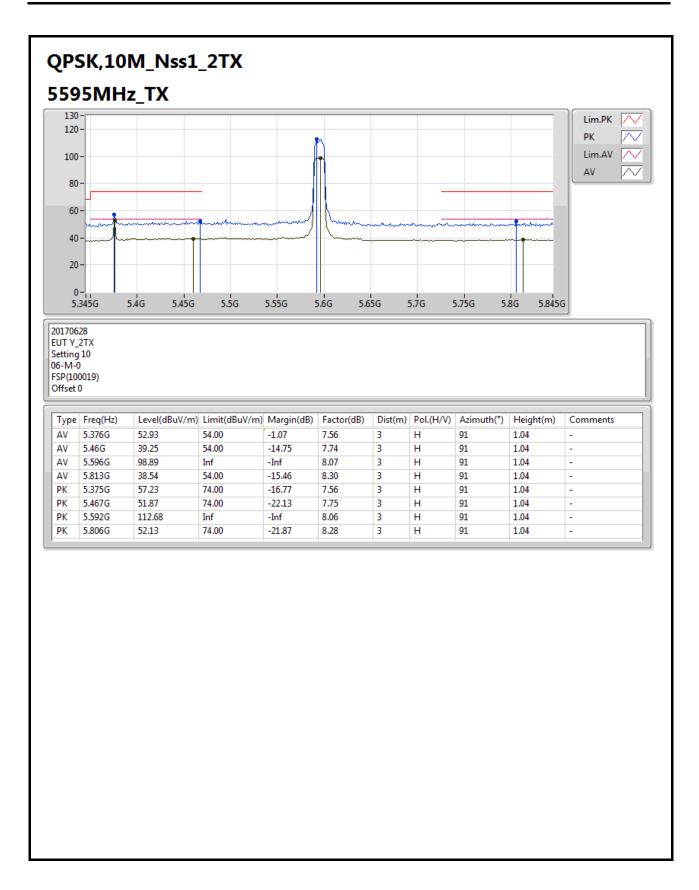






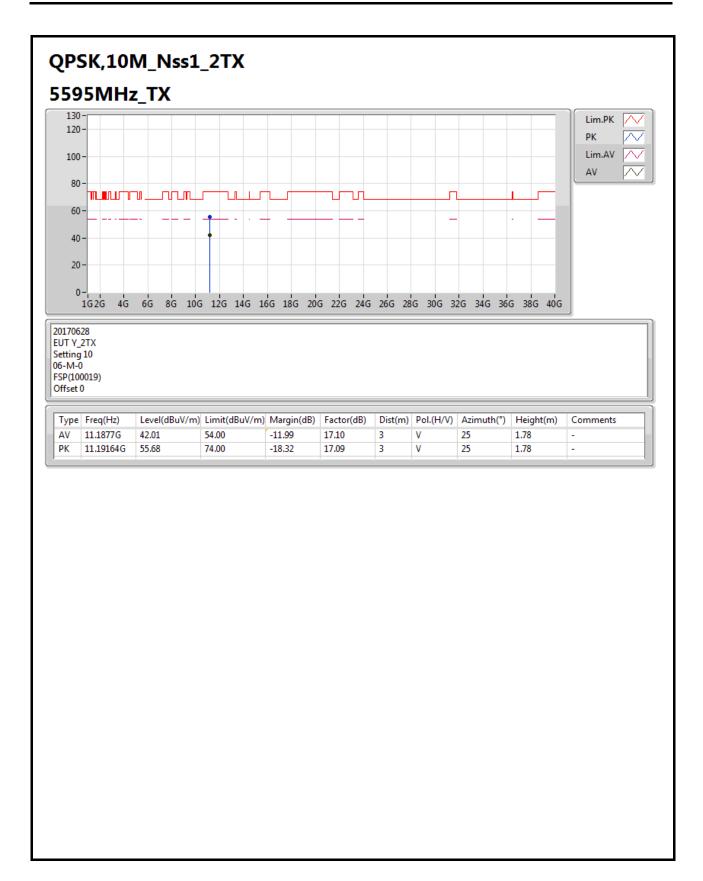




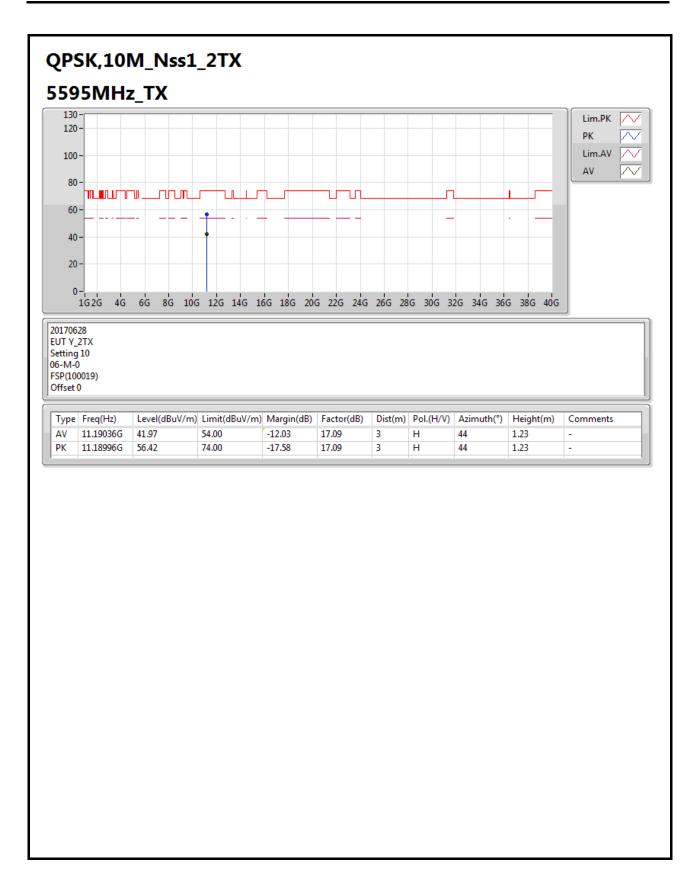


Page No. : 24 of 57

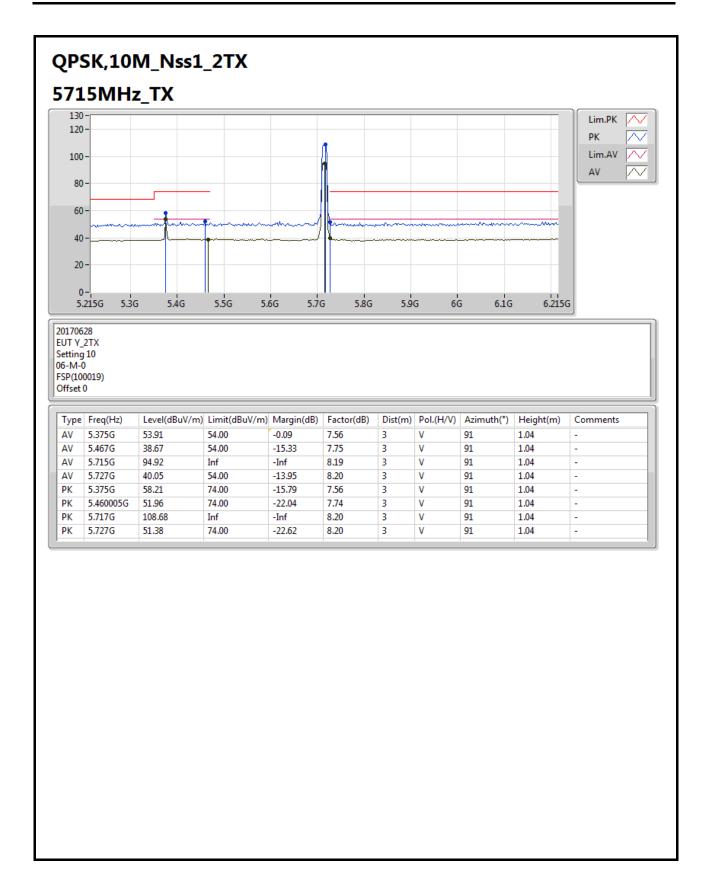




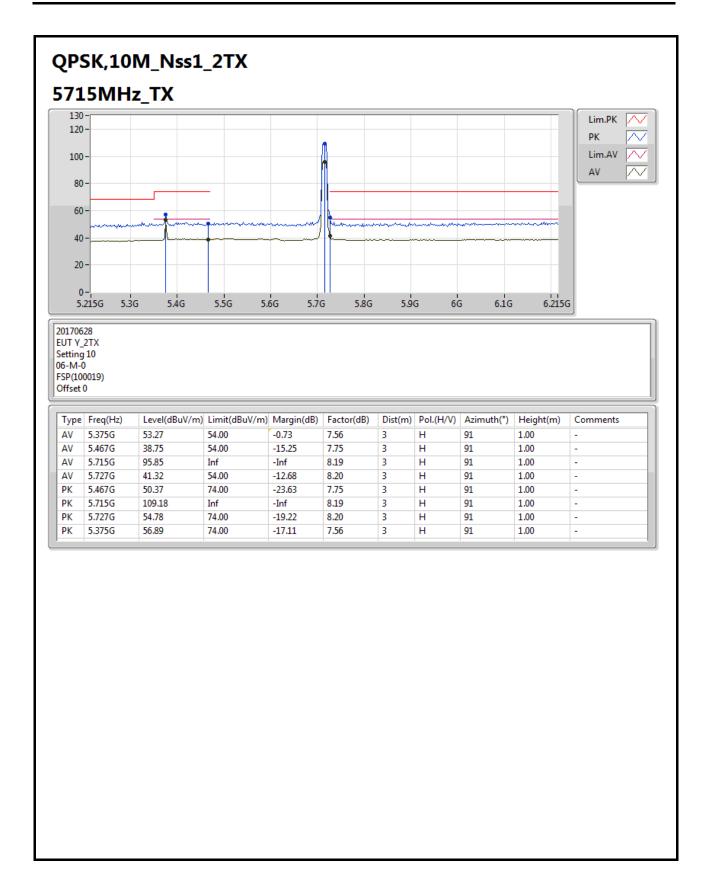




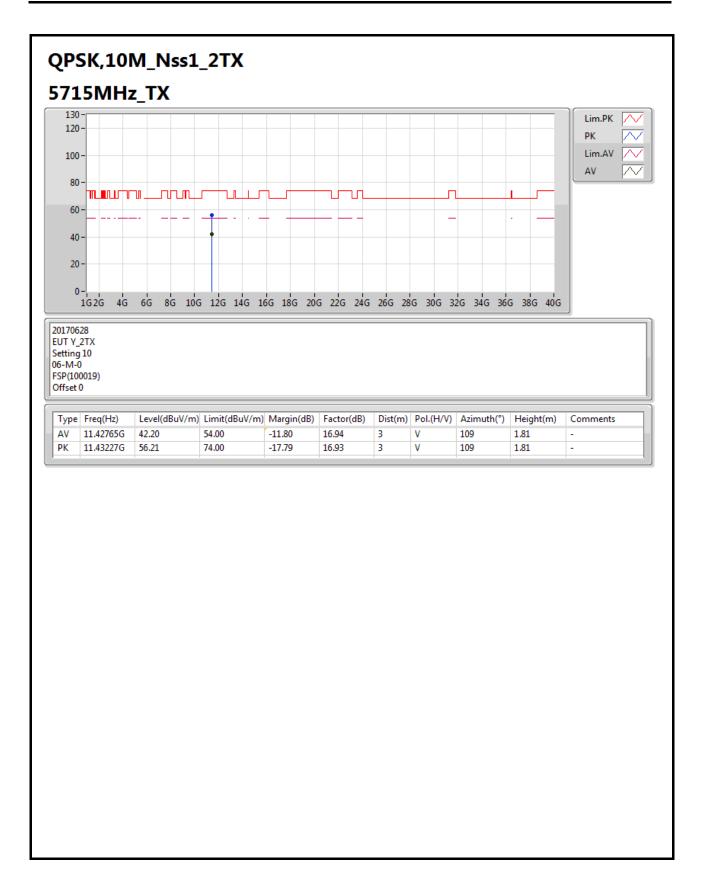




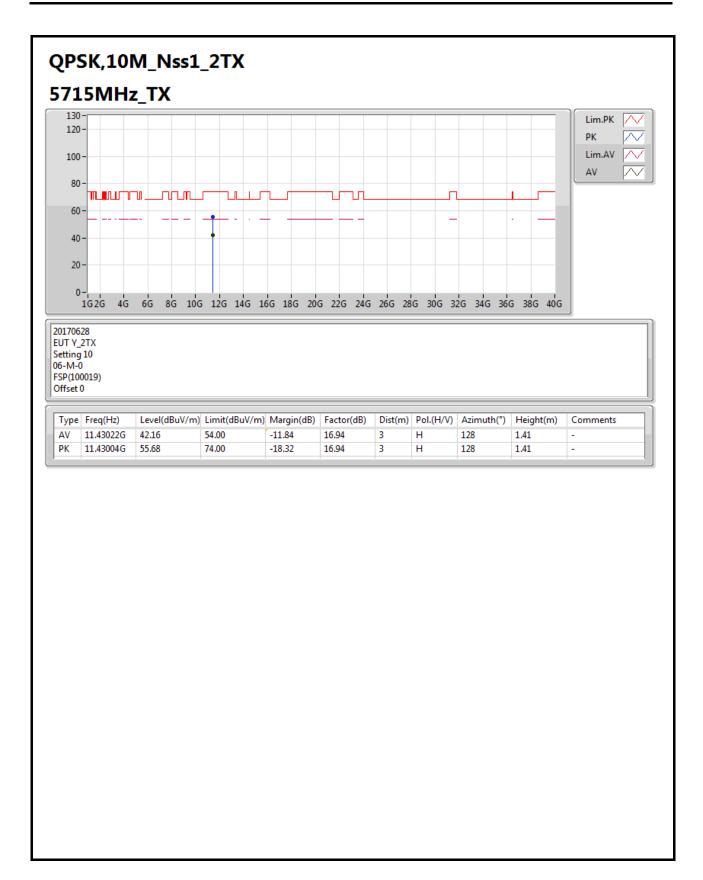




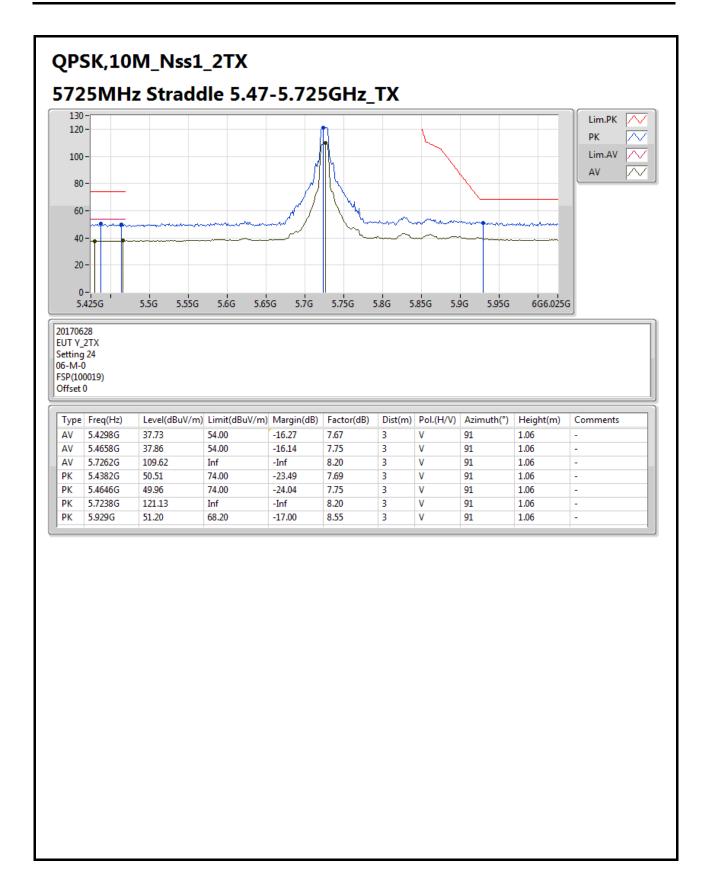




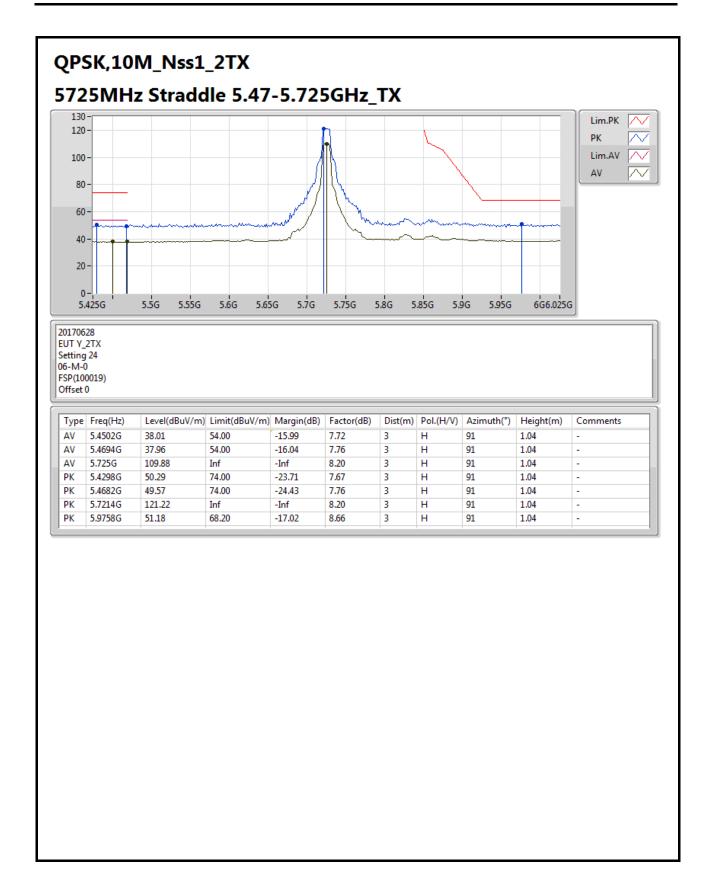






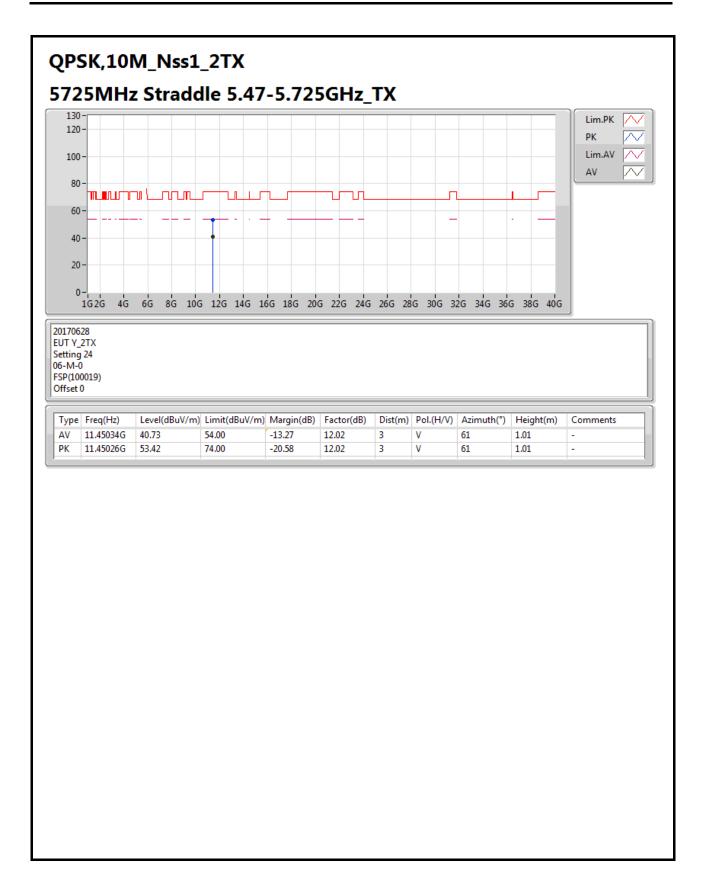






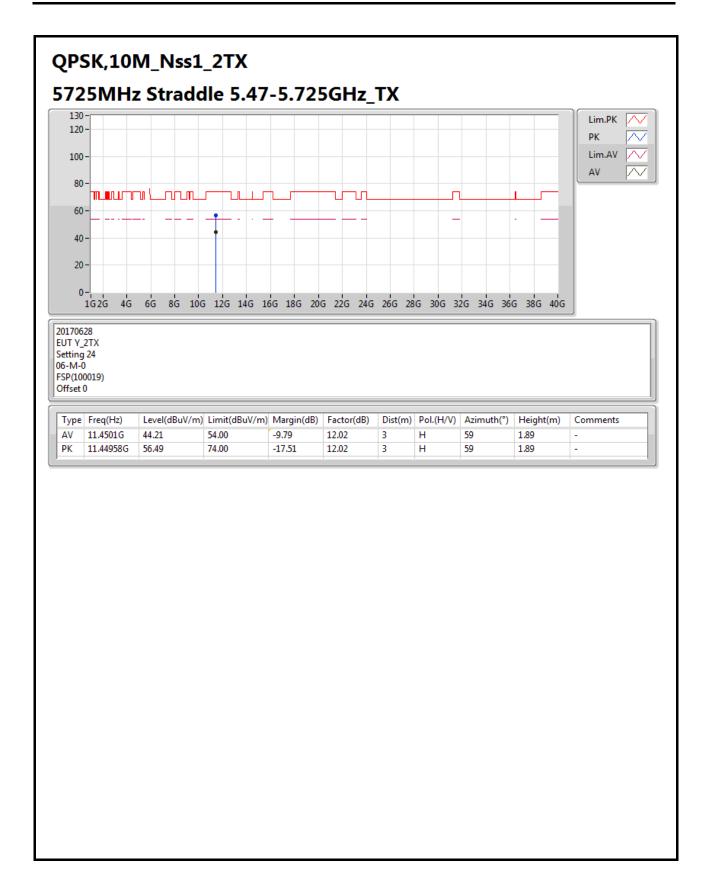
Page No. : 32 of 57



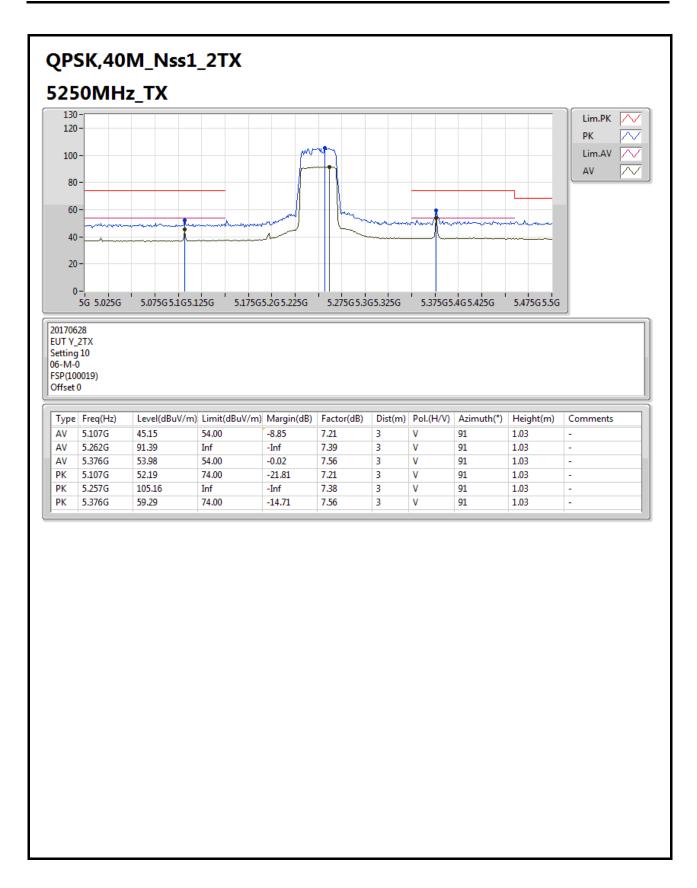


Page No. : 33 of 57



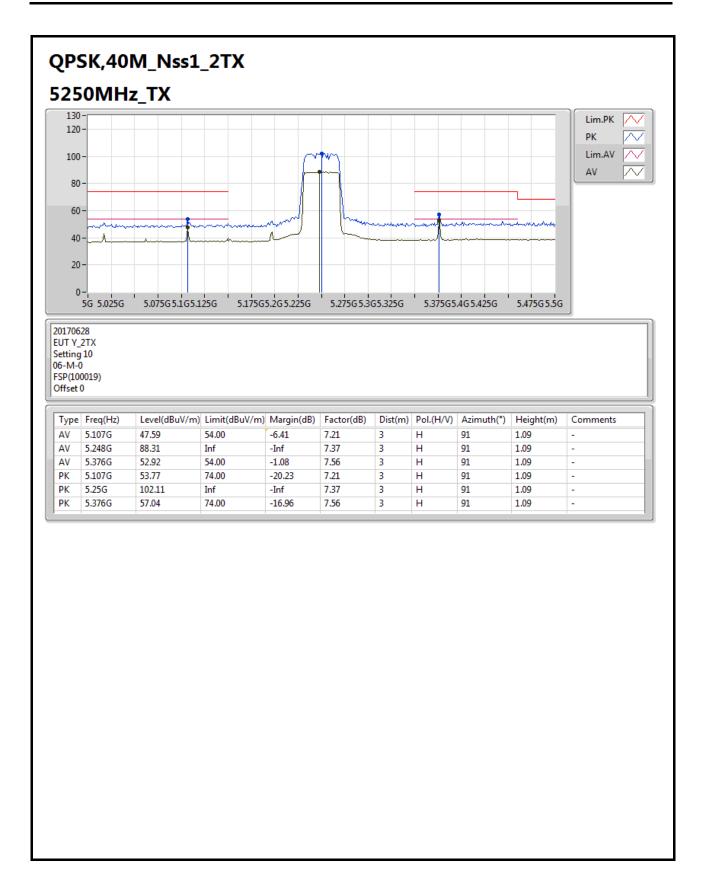




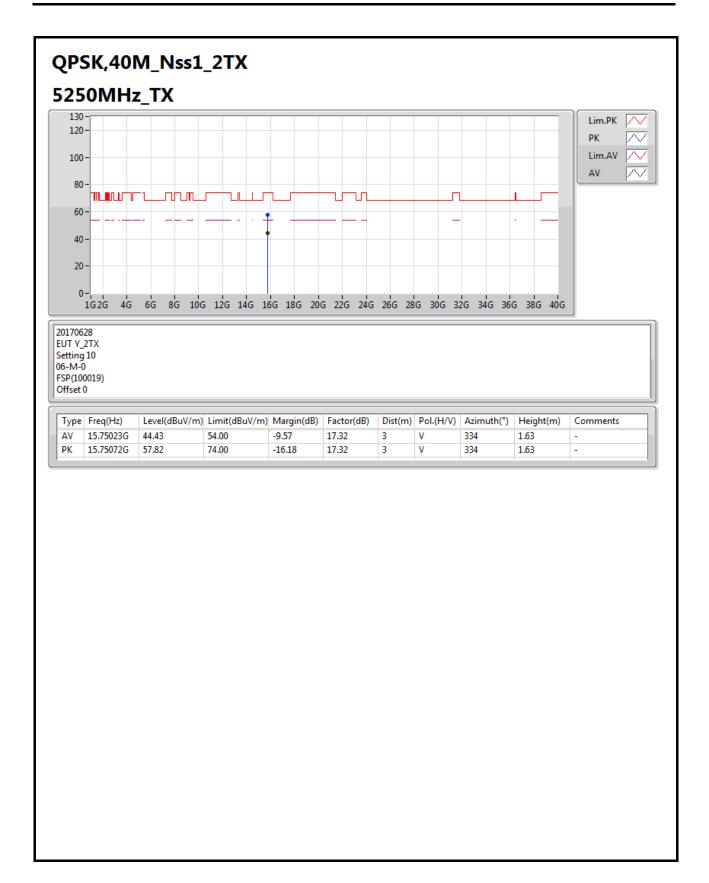


Page No. : 35 of 57

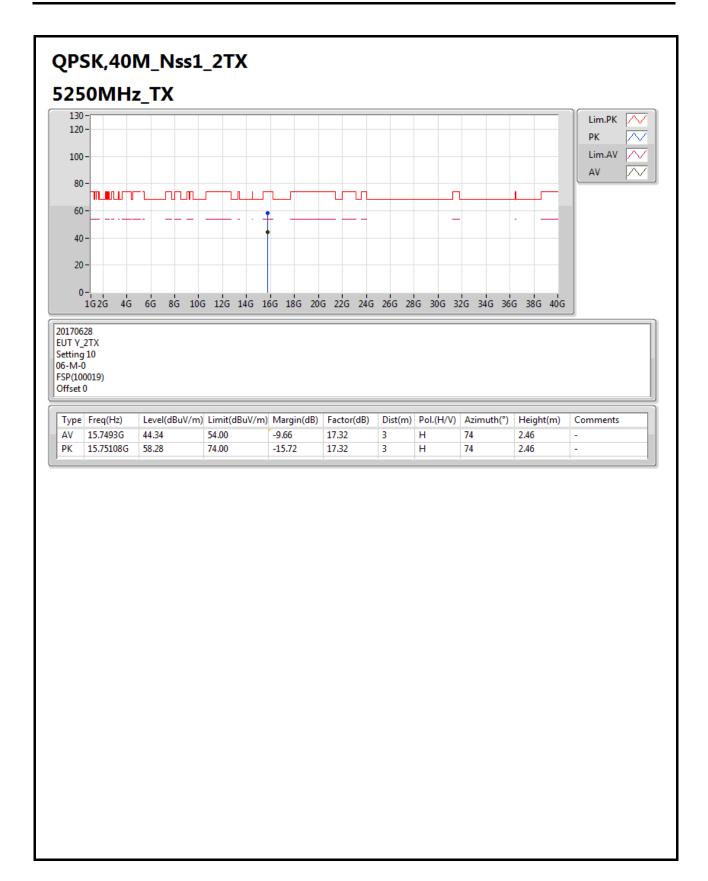




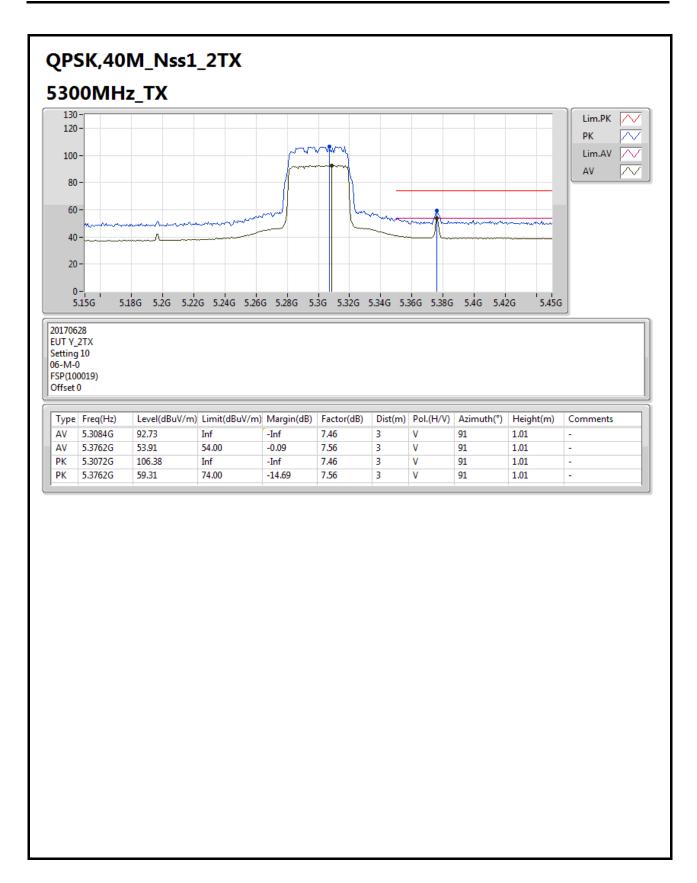






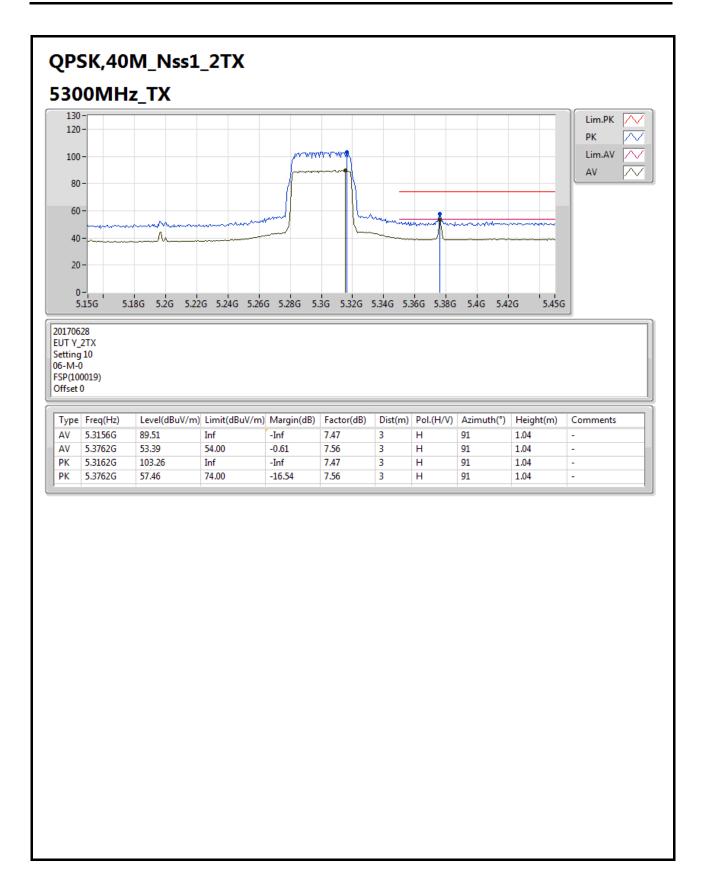




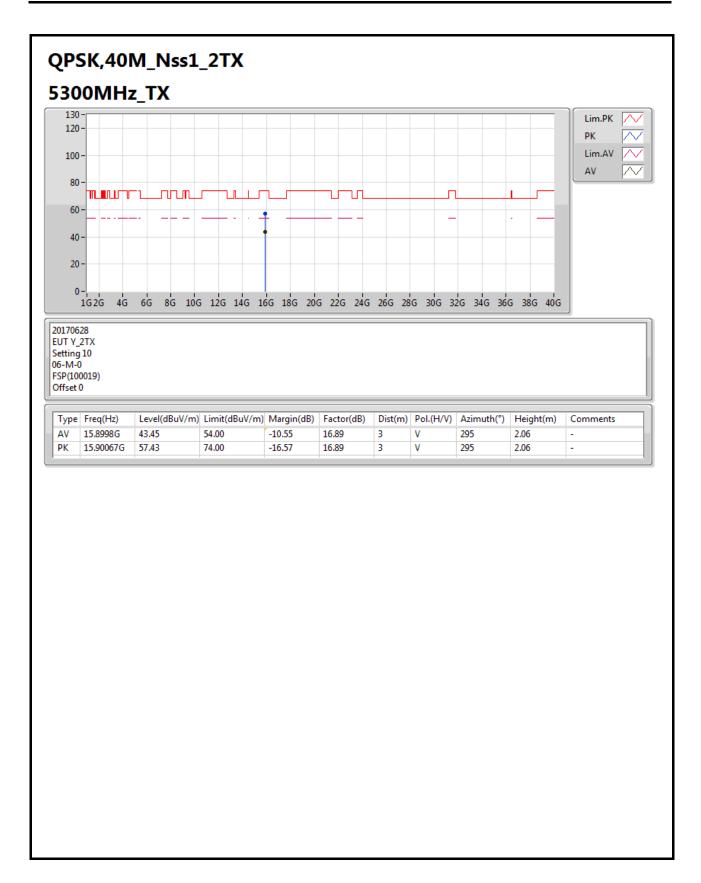


Page No. : 39 of 57

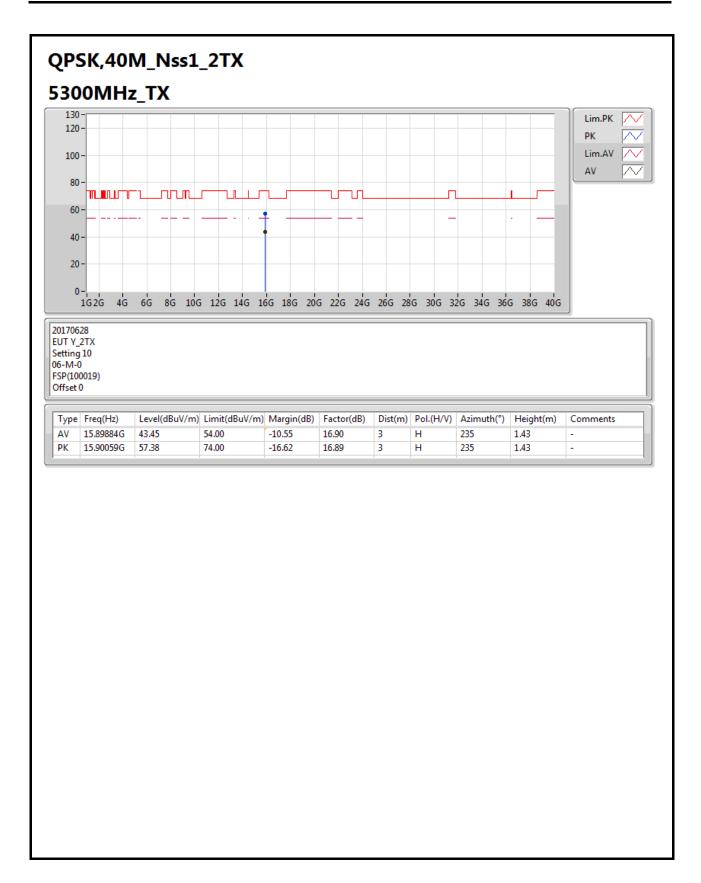






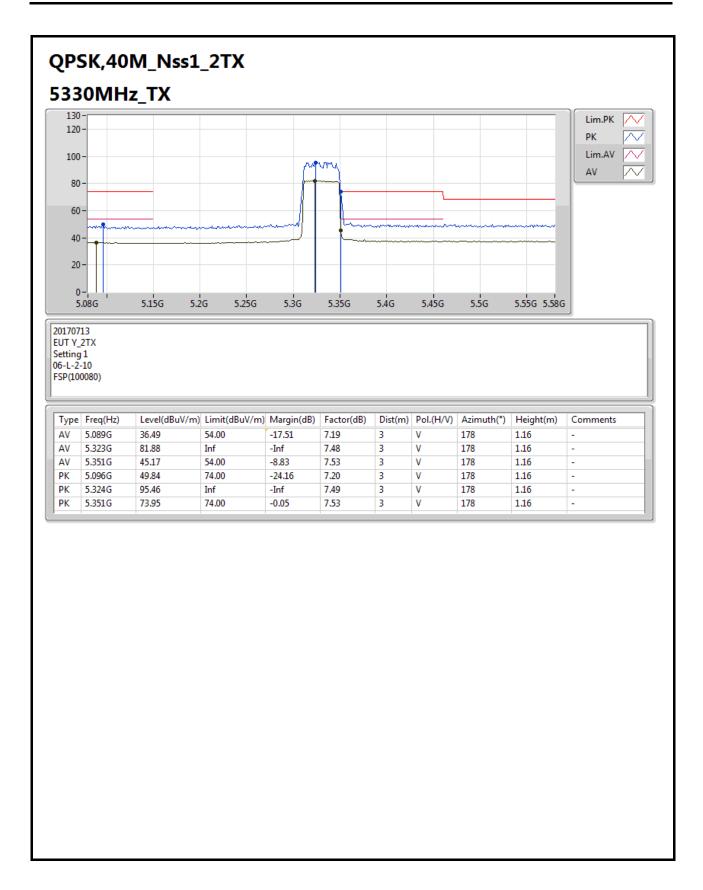






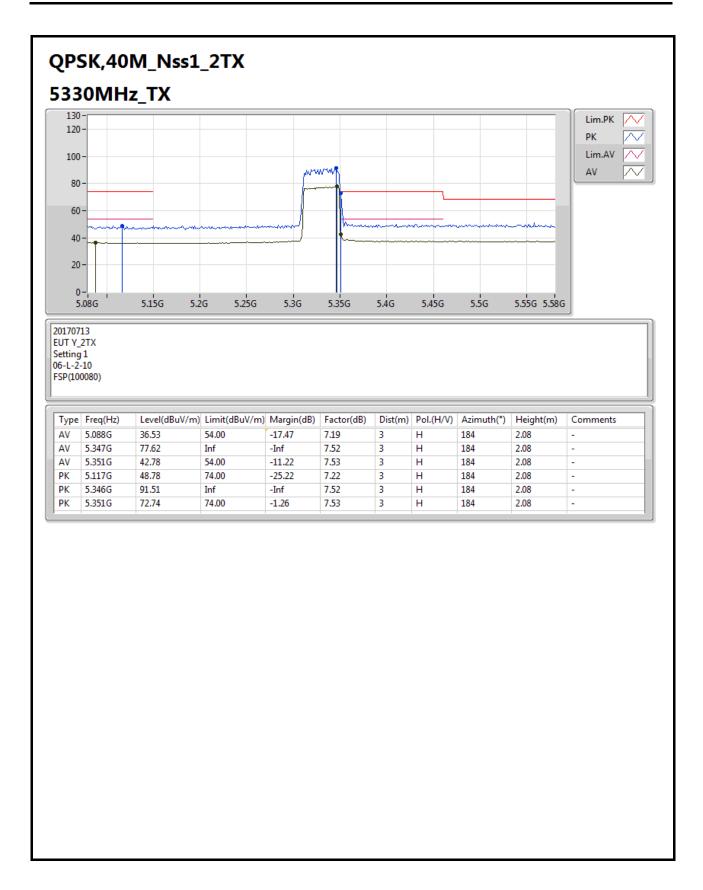
Page No. : 42 of 57



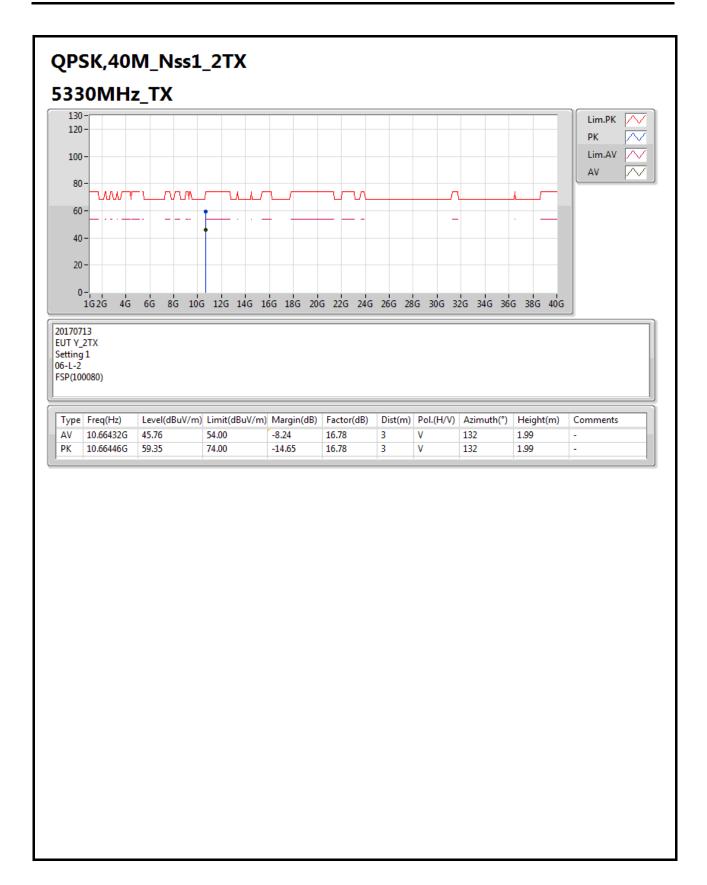


Page No. : 43 of 57



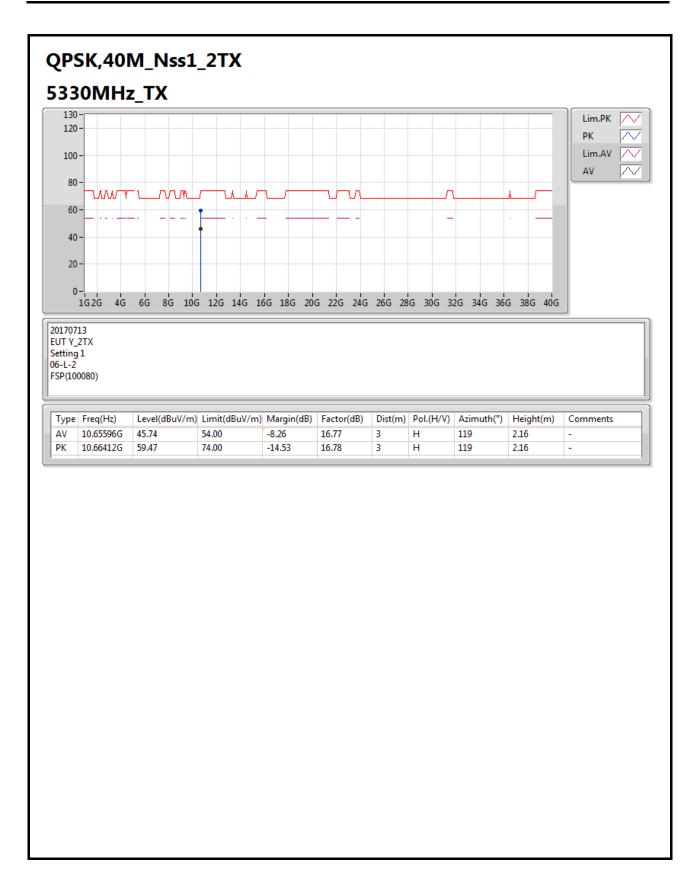




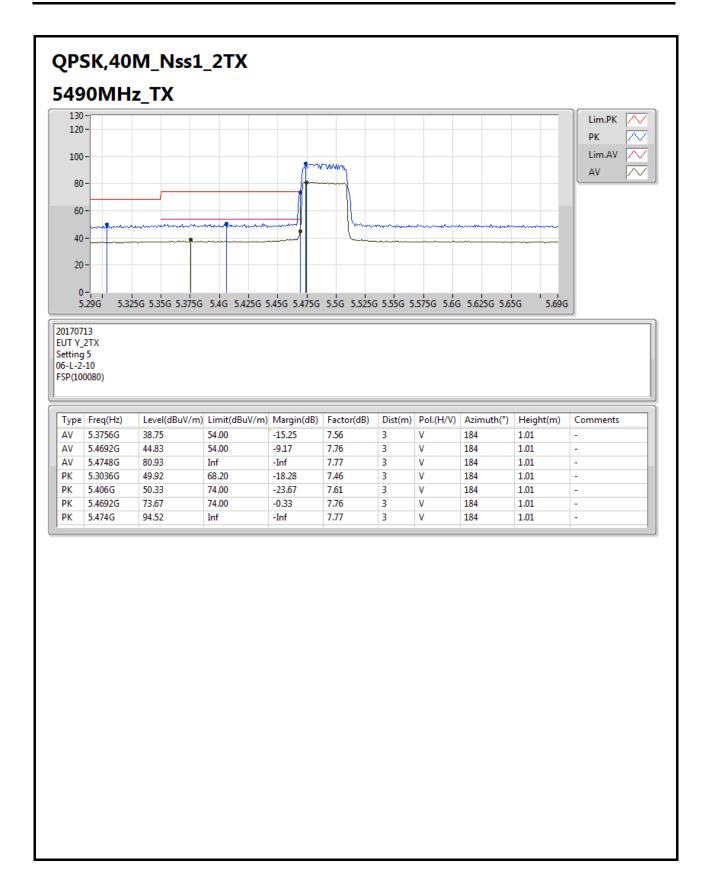


Page No. : 45 of 57

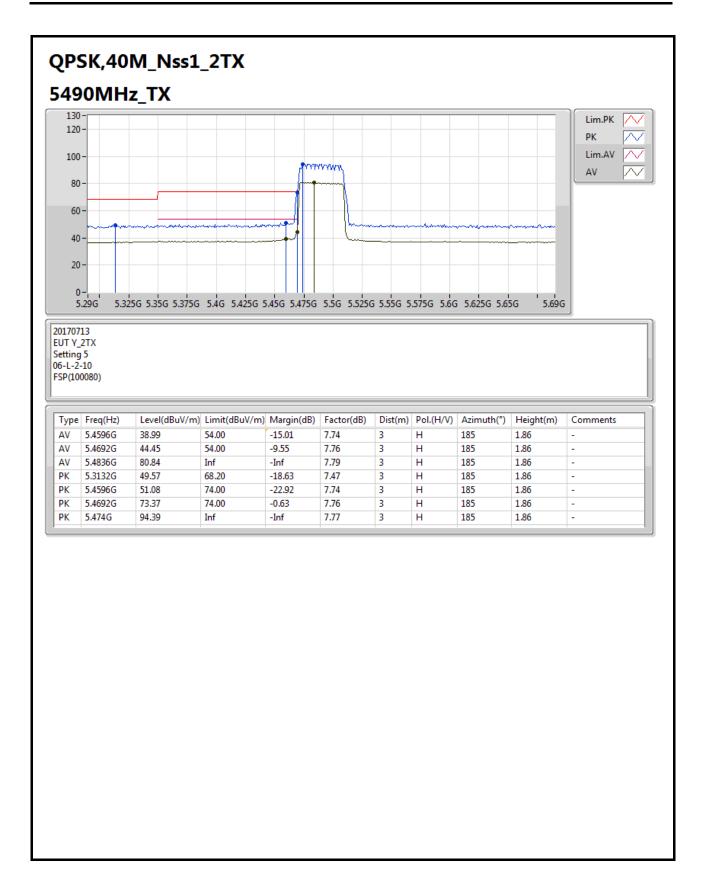






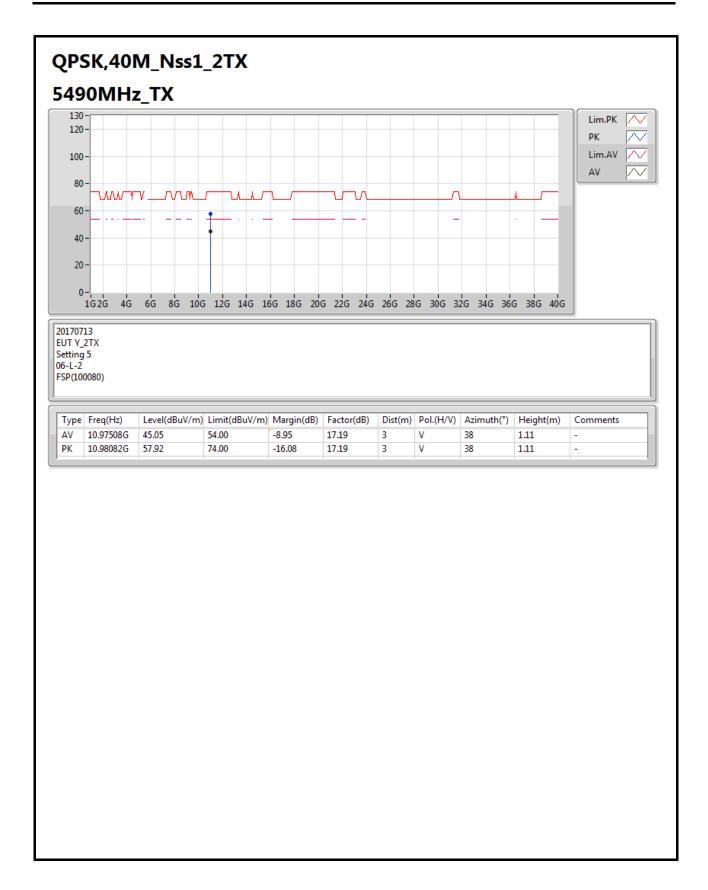






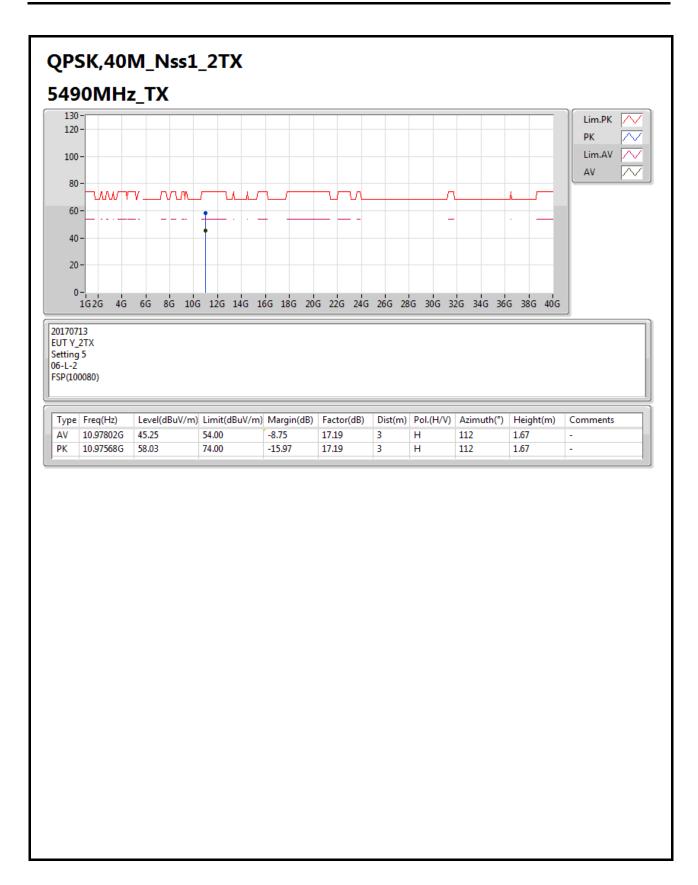
Page No. : 48 of 57



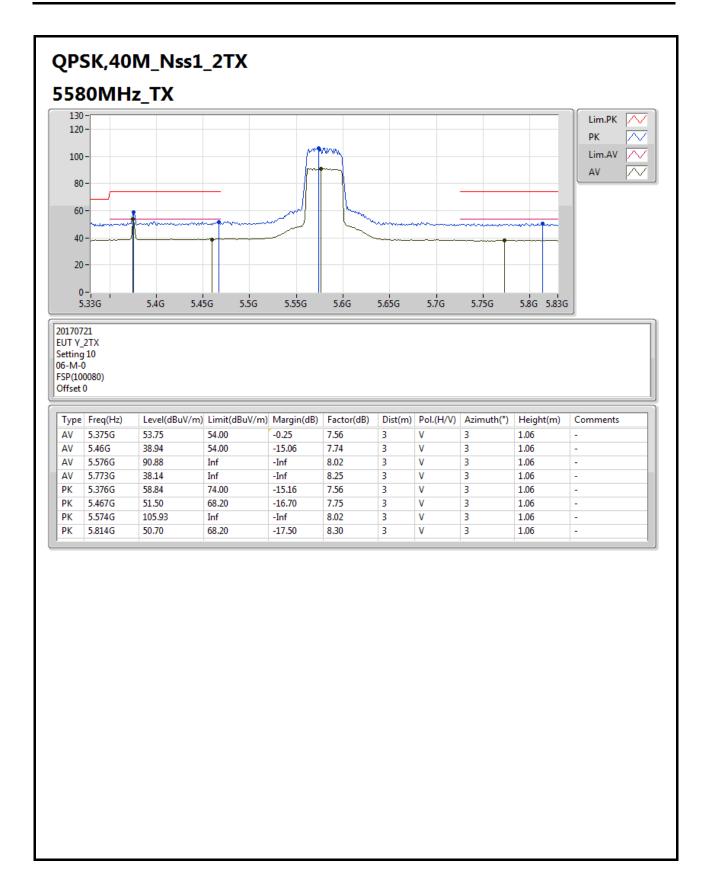


Page No. : 49 of 57

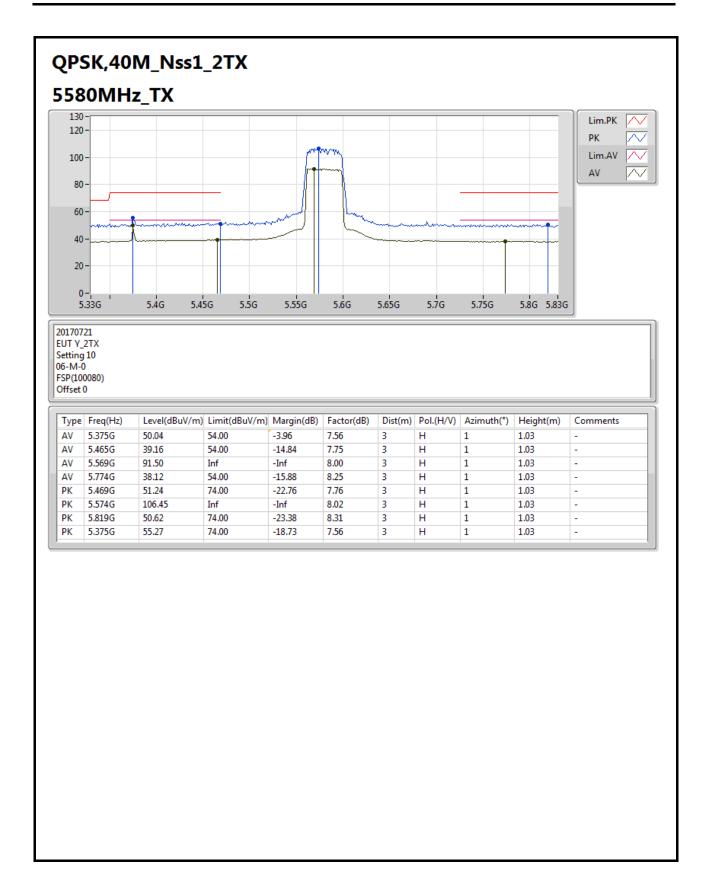




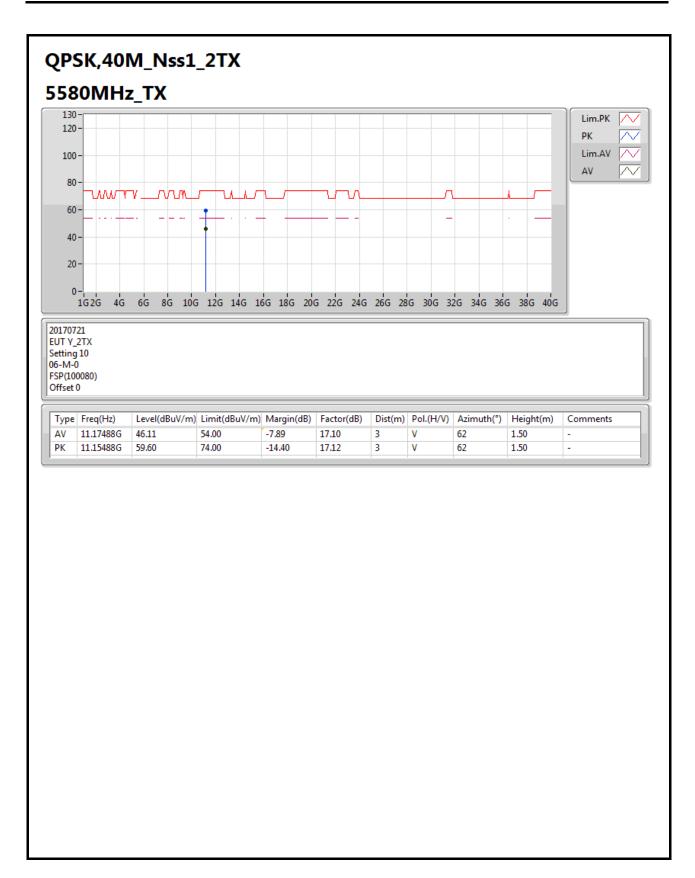






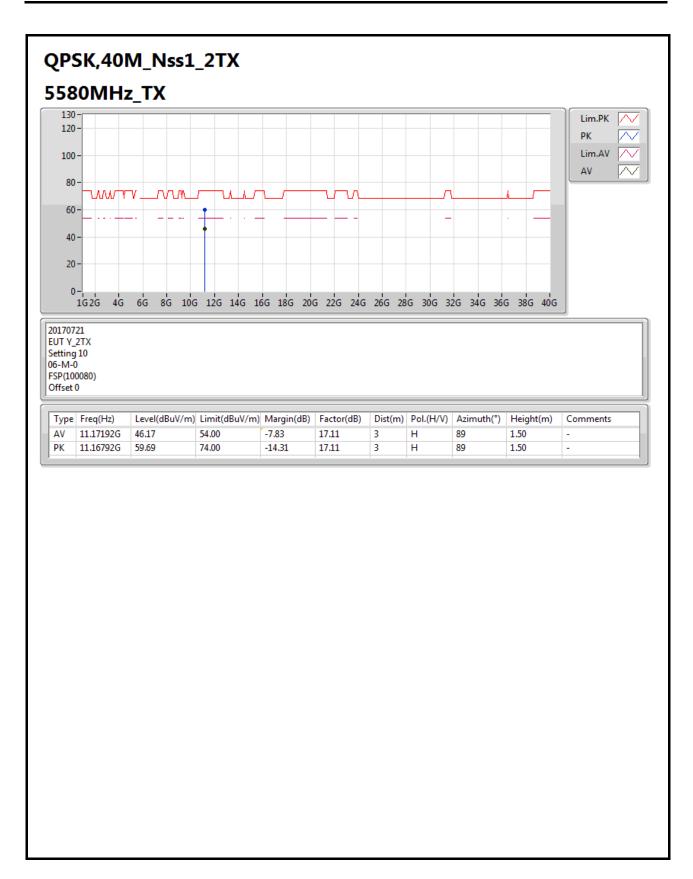






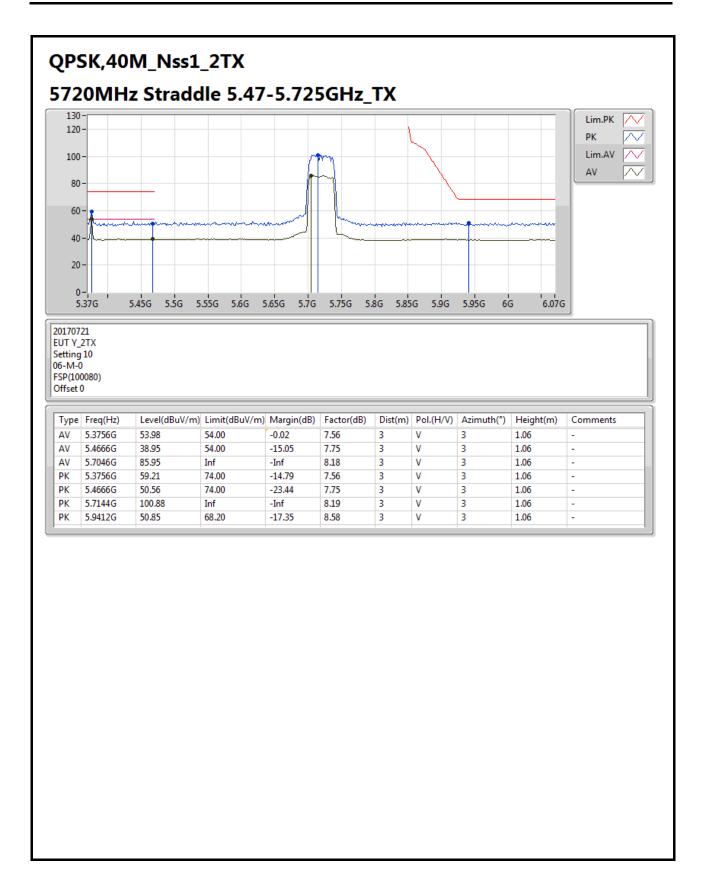
Page No. : 53 of 57





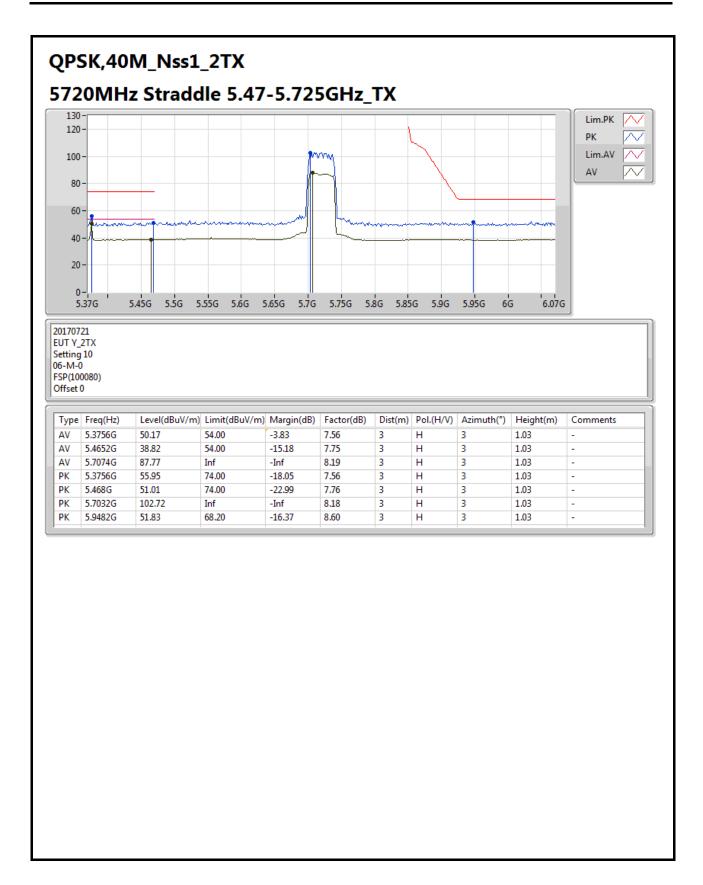
Page No. : 54 of 57



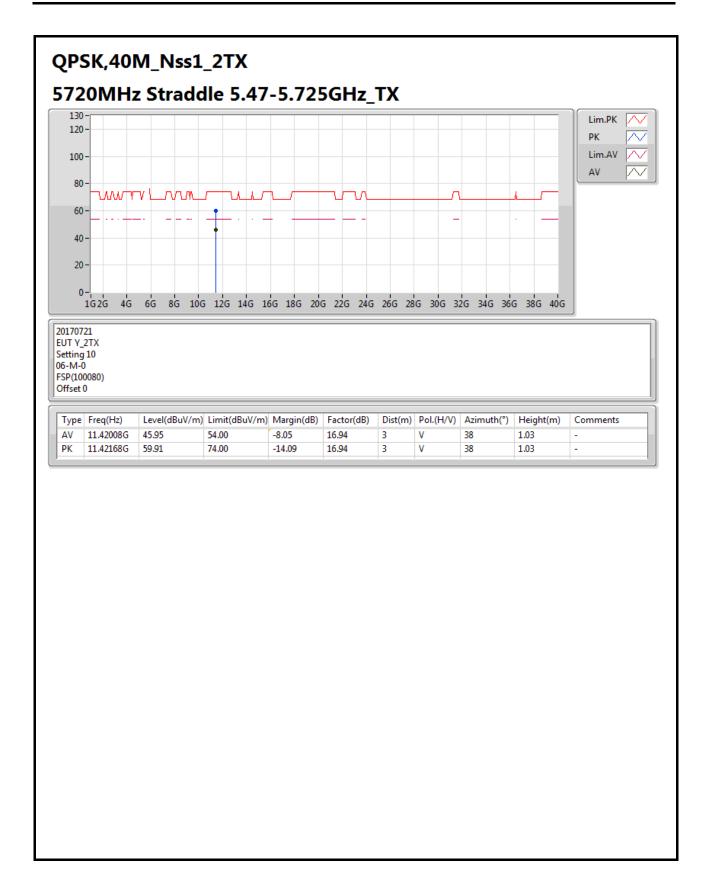


Page No. : 55 of 57



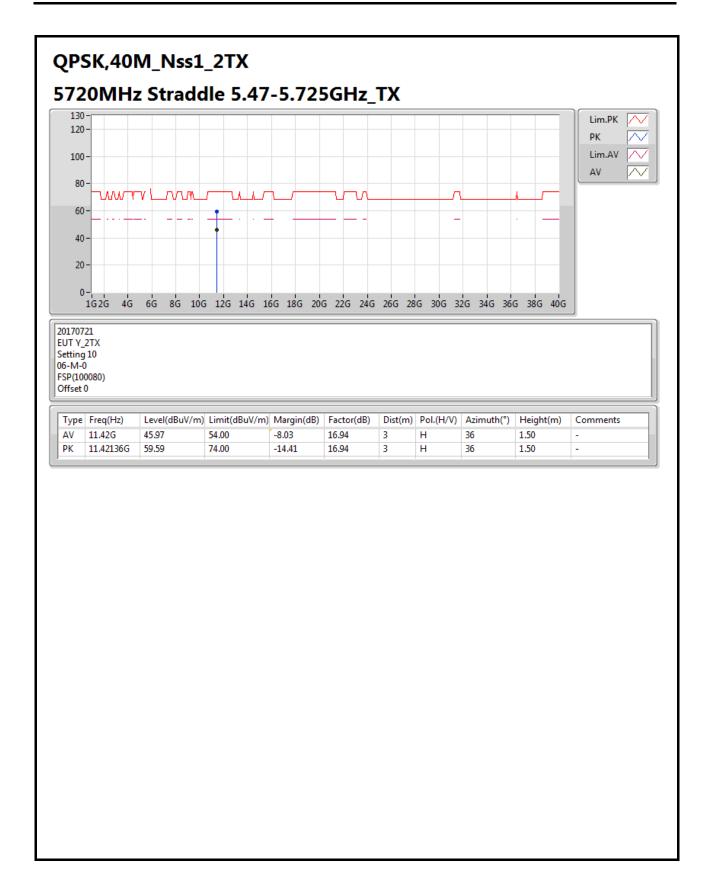






Page No. : 57 of 57







FS Result Appendix E

Mode: 10, 40 M / Port 1 Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
ΛΛ	5300 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5299.9892	5299.9891	5299.9886	5299.9881
110.00	5299.9889	5299.9883	5299.9874	5299.9873
93.50	5299.9888	5299.9887	5299.9877	5299.9869
Max. Deviation (MHz)	0.0112	0.0117	0.0126	0.0131
Max. Deviation (ppm)	2.11	2.21	2.38	2.47
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(℃)	5300 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5299.9988	5299.9979	5299.9975	5299.9965
-30	5299.9846	5299.9844	5299.9840	5299.9834
-20	5299.9866	5299.9864	5299.9856	5299.9848
-10	5299.9871	5299.9862	5299.9857	5299.9854
0	5299.9878	5299.9870	5299.9865	5299.9861
10	5299.9884	5299.9883	5299.9878	5299.9877
20	5299.9889	5299.9886	5299.9877	5299.9872
30	5299.9899	5299.9895	5299.9893	5299.9884
40	5299.9916	5299.9907	5299.9900	5299.9899
50	5299.9934	5299.9932	5299.9930	5299.9925
60	5299.9922	5299.9915	5299.9914	5299.9905
70	5299.9929	5299.9926	5299.9918	5299.9910
Max. Deviation (MHz)	0.0154	0.0156	0.0160	0.0166
Max. Deviation (ppm)	2.91	2.94	3.02	3.13
Result	Pass			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)				
0.0		5580 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5579.9940	5579.9934	5579.9930	5579.9922	
110.00	5579.9934	5579.9927	5579.9925	5579.9923	
93.50	5579.9929	5579.9919	5579.9909	5579.9902	
Max. Deviation (MHz)	0.0071	0.0081	0.0091	0.0098	
Max. Deviation (ppm)	1.27	1.45	1.63	1.76	
Result	Pass				

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5580 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5580.0017	5580.0011	5580.0005	5579.9997
-30	5580.0014	5580.0006	5580.0004	5580.000
-20	5580.0001	5579.9997	5579.9995	5579.9990
-10	5579.9981	5579.9975	5579.9973	5579.9967
0	5579.9966	5579.9958	5579.9953	5579.9952
10	5579.9950	5579.9948	5579.9938	5579.993
20	5579.9934	5579.9930	5579.9921	5579.9914
30	5579.9891	5579.9888	5579.9886	5579.988
40	5579.9873	5579.9863	5579.9861	5579.9859
50	5579.9872	5579.9863	5579.9854	5579.9853
60	5579.9890	5579.9882	5579.9877	5579.9874
70	5579.9871	5579.9866	5579.9856	5579.9854
Max. Deviation (MHz)	0.0129	0.0137	0.0144	0.0146
Max. Deviation (ppm)	2.31	2.46	2.58	2.62
Result	Pass			

SPORTON INTERNATIONAL INC. Page No. : 1 of 2



FS Result Appendix E

Mode: 10 M / Port 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5595 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5594.9961	5594.9954	5594.9946	5594.9945
110.00	5594.9955	5594.9954	5594.9944	5594.9937
93.50	5594.9945	5594.9938	5594.9934	5594.9929
Max. Deviation (MHz)	0.0055	0.0062	0.0066	0.0071
Max. Deviation (ppm)	0.98	1.11	1.18	1.27
Result	Pass			

Temperature vs. Frequency Stability

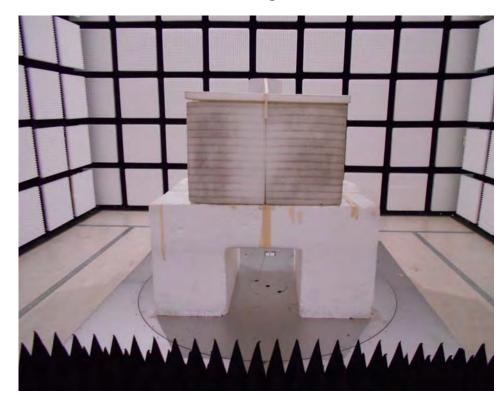
Temperature	Measurement Frequency (MHz) 5595 MHz			
(°C)				
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5594.9926	5594.9923	5594.9919	5594.9916
-30	5594.9936	5594.9932	5594.9922	5594.9913
-20	5594.9939	5594.9932	5594.9931	5594.9930
-10	5594.9943	5594.9940	5594.9937	5594.9930
0	5594.9946	5594.9941	5594.9935	5594.9933
10	5594.9955	5594.9947	5594.9938	5594.9929
20	5594.9967	5594.9959	5594.9955	5594.9949
30	5594.9977	5594.9969	5594.9966	5594.9958
40	5594.9989	5594.9988	5594.9981	5594.9972
50	5594.9996	5594.9989	5594.9987	5594.9979
60	5594.9994	5594.9989	5594.9982	5594.9975
70	5594.9876	5594.9866	5594.9856	5594.9851
Max. Deviation (MHz)	0.0124	0.0134	0.0144	0.0149
Max. Deviation (ppm)	2.22	2.39	2.57	2.66
Result	Pass			

SPORTON INTERNATIONAL INC. Page No. : 2 of 2

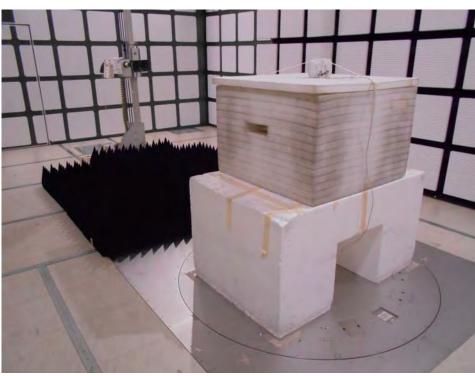


Test Photos Appendix F

1. Photographs of Radiated Emissions Test Configuration



FRONT VIEW



Page No. : 1 of 1

REAR VIEW